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ADDRESSES AND ORIGINAL ARTICLES

PULMONARY NEW GROWTHS

PATHOLOGY, DIAGNOSIS, AND TREATMENT *

BY R. C. BROCK, M.S. Lond., F.R.C.S.

ASSISTANT SURGEON TO GUY'S HOSPITAL AND TO THE BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST

I INTEND to discuss the pathology and diagnosis of the benign bronchial growths more fully than those of the malignant ones because there is wide general ignorance of their very existence, although to those who are engaged in the constant study of chest diseases they are becoming not only familiarly frequent but have assumed a great practical importance. In dealing with the malignant tumours I shall concentrate mostly on treatment, only referring to details of pathology and diagnosis in so far as they are closely related to the problems of treatment.

Benign Tumours

Benign growths arising in the *lung substance* are very rare but nevertheless are of extreme interest, and there is every reason to suppose that with the rapid expansion of radical chest surgery more will be collected and described. The possibility of a solid lung tumour being benign must always be considered when the question of operability arises.

Myoma, chondroma, osteoma, and fibroma may be found in the lung and I have met with instances of all of these. The fibroma and the fibromyoma each appeared as well-defined tumours which caused hæmoptysis and each was successfully removed by operation.

Fig. 1 shows a large tumour of the lung which was found post mortem in a man of 39 who died in Guy's Hospital in November, 1933; he had been suffering for four months from attacks of palpitations and dizziness and was admitted to hospital with congestive heart failure; he was coughing up large quantities of foul purulent sputum and died 14 days after admission. The tumour in the lower lobe of the left lung was as big as a grape-fruit and so hard that it had to be cut by a saw. Its central portion had broken down to give a large infected cavity. It was composed of ossifying and calcifying hyaline cartilage and, in spite of its size, was still perfectly encapsuled. Before the period of final breakdown this tumour could easily have been excised.

The number of proven cases of benign neoplasm of the lung is so small that no symptomatology can be given. A benign pulmonary tumour is apparently quite latent until ulceration into a bronchus occurs and hæmoptysis follows.

A description of the pathology of the benign tumours arising in the *bronchi* is a difficult task. When Wessler and Rabin wrote their important paper in 1932 not more than 30 examples had been recorded in the literature. Since then, however, many more have been recognised, chiefly owing to our greater interest in the surgical treatment of diseases of the chest and to the wider use of the bronchoscope. Many more cases or groups of cases undoubtedly remain unpublished than are to be found in the literature even since 1932. Morlock and Pinchin (1935) record 9 cases they have met with while bronchoscoping 150 patients with new growth (6 per cent.). My own 12 cases have shown a slightly greater incidence. In the literature of bronchial carcinoma one constantly meets with cases which are almost certainly examples of benign tumour wrongly diagnosed. Whether these tumours are uncommon or not, they possess a practical importance which far outweighs their rarity; although benign, if not

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FIG. 1.—Large breaking-down, ossifying chondroma found post mortem.

discovered and removed, they produce pulmonary complications which result in the death of the patient as surely as if they were truly malignant.

By far the commonest type is the so-called adenomatous polyp. Others, such as fibromas, are found occasionally (I have met with 1 fibroma to 11 adenomas), but they are so much in the minority and the pathological changes following their presence and the clinical course of the illness resulting are so indistinguishable from those of the first type that no separate description is needed.

MACROSCOPIC FEATURES AND SECONDARY EFFECTS

Although these polyps arise usually in a main bronchus or the main bronchus to a lobe, they do not always do so, for I have on two occasions seen them in a tertiary bronchus of the lower lobe. In one instance there was no radiological change in the lung, in the other there was atelectasis and infection of only a portion of the lower lobe. They may be met with at any age, but more than half the cases are below the age of 40, and the tumours have a definite predilection for women—a fact that is in marked contrast to the malignant bronchial growths.

The tumour is usually pedunculated and is so placed that its free bulbous end is directed towards the trachea. This probably results from its being extruded from the bronchus in the act of coughing. The body of the tumour adapts itself to the lumen of the bronchus, which it fills completely. A large polyp of long standing may even distend the walls considerably. Its colour varies from pale to bright pink and it has a smooth, shiny, unulcerated surface. Sometimes it is finely nodular like a raspberry. Close inspection of the surface reveals numerous small blood-vessels coursing over it and indeed its extreme vascularity and tendency to free bleeding

* Hunterian lecture delivered at the Royal College of Surgeons of England, 1938.

are among its most prominent features. If touched with an instrument at bronchoscopy it may bleed furiously and in two of my cases the hæmorrhage was so free and persistent that the examination had to be stopped. The consistency of the tissue forming it is either firm or hard, almost never soft or friable.

The adjacent lymph glands are never involved and in a typical case there is no indication of infiltration of the adjacent bronchial wall or lung parenchyma. In two cases that Wessler and Rabin studied post mortem a small prolongation passed between the cartilaginous rings and expanded again external to the bronchus rather like a cottage loaf. This behaviour is not to be mistaken for infiltration; it should be remembered that epithelial elements—i.e., mucous glands—are normally present outside the cartilaginous rings.

In addition to attacks of bleeding, other changes follow their presence. The bronchi behind the obstruction dilate and the affected lobe or even the whole lung becomes collapsed and airless. For a varying time infection is minimal or absent, but sooner or later it follows the obstruction and a purulent bronchiectasis then develops. Before actual purulent expectoration begins there may be an attack of apparently simple pneumonia, and indeed the first sign of the illness may be traced back to such an attack and further attacks of pneumonia with or without pleurisy usually follow.

Inflammation of the pleura is inevitable in most cases. This may be a dry or serous pleurisy or an empyema may follow. This pleural infection again may be the first sign of illness and only the chronicity of the resulting empyema or the occurrence of bleeding may point to the underlying polyp. In Wessler and Rabin's cases empyema occurred three times and led to the patients' death, and in all three the true cause was unsuspected until autopsy. In 2 of my own 12 cases numerous operations had been done elsewhere over a course of several years for a persistently discharging empyema. In each case the whole lung was shrunken, fibroid, and full of multiple bronchiectatic abscesses. In 3 more empyema occurred. Death from these infections is not to be wondered at, since many cases of true bronchial carcinoma die not from infiltration or metastases but purely from secondary suppuration.

CLINICAL COURSE AND DIAGNOSIS

The clinical course of the benign intrabronchial tumours follows naturally from a consideration of their morbid anatomy and pathology. Not only is it important to recognise their presence, but they should be recognised and treated early before gross secondary changes have taken place in the obstructed lung. Much time is usually wasted by incomplete diagnoses such as recurrent pneumonia, unresolved pneumonia, dry hæmorrhagic bronchiectasis, bronchiectasis, empyema, or tuberculosis. The tragedy of the chronic empyema which is due to an overlooked polyp has already been mentioned; no less tragic is the loss of many years of useful life caused by a diagnosis of tuberculosis.

One patient was first taken ill in 1918 with cough and hæmoptysis and spent many years in a sanatorium while his cough and bleeding continued. Artificial pneumothorax was tried and failed; phrenic evulsion was done; and even thoracoplasty advised. It was not until 1932, after nearly 14 years, that a bronchoscope was passed and the correct diagnosis made. I have another patient, a man of 34, whom I found in a sanatorium where he had been for four months, and yet a third—a woman of 27—who had visited at one time or another five big London hospitals and had been sent from the last to a sanatorium with a diagnosis of tuberculous pleurisy. In each of these three cases the outstanding feature on radiological examination was a collapsed lower lobe, and this should have led to a correct diagnosis much earlier.

The most characteristic appearance given by the bronchogram is a complete and sharp transverse block which was once thought to be characteristic of carcinoma but is certainly not so. The appearance is due to the opaque oil filling the groove around the polyp, the dome of which is, of course, concealed by the oil. Sometimes the convex outline of the polyp can be seen and on one occasion I was fortunate enough to obtain a picture of a polypoid-filling defect (Fig. 2).

FIG. 2.—Diagram of bronchogram showing filling defect.

MICROSCOPIC APPEARANCE

The clinical course and duration of these tumours compels one to class them as benign. In my own series one patient had had symptoms of the tumour for 19 years, two for 5 years, and one for 3 years. This is similar to the duration of symptoms in other series and is quite unlike the behaviour of a malignant growth. Thus, of Wessler and Rabin's cases, in one the history extended over 13 years, in one 11 years, and in one 7 years. In Morlock and Pinchin's series equally long histories are recorded, such as 21 and 14 years. It is impossible with such figures and in the absence of metastases at post-mortem in cases surviving so many years, to consider these polyps as malignant growths, and yet their histological structure suggests it and almost every pathologist to whom they are submitted for an opinion insists that histologically they are malignant. There is no doubt that this fact is responsible for their tardy recognition.

The body of the tumour is covered by a layer of squamous epithelium which may even result in a keratinised covering. The tumour itself is made up of rather small cells whose cytoplasm varies in size in different cases; the nuclei are usually small and either round or ovoid. The striking characteristic is a uniformity and homogeneity of structure, well shown in Fig. 3 which compares fields from three of my specimens. Unlike those in the oat-celled carcinoma, which they otherwise resemble closely, the cells are usually arranged regularly and in a glandular fashion to form acini.

ANOMALOUS TYPES

From a mere survey of the literature the impression is obtained that these tumours form a simple clear-cut group of polypoid tumours. Personal experience shows that this is by no means so, and I have been considerably mystified and confused by certain apparently anomalous types. I believe that now, however, I am able to explain their occurrence and to correlate them with their fellows. I will first illustrate a sequence of three cases, all of which have

been under the care of my senior colleague, Mr. J. E. H. Roberts.

CASE 1.—Fig. 4 shows the condition in a patient in whom an intrabronchial polypoid tumour had been destroyed by radon, but a large parabronchial nodule remained five years later.

CASE 2.—A man of 32 had been ill for 7 years before he was seen by Mr. N. R. Barrett of St. Thomas's Hospital, who bronchoscoped him and removed from his right lower bronchus a small polyp which was shown to be histologically benign. He later became very ill, owing to the onset of infection in the lobe, and was admitted to the Brompton Hospital. At bronchoscopy the walls of the lower right bronchus showed numerous irregular plaques and patches having all the appearances of a carcinomatous infiltration. No polyp was seen. I removed some of the nodules for biopsy and Dr. E. E. Atken reported that they had the structure of a bronchial adenoma. My findings were confirmed by Mr. Roberts, who was also able to obtain material for biopsy on which a similar report was made. Owing to the development of a large abscess in the lower lobe external drainage was later necessary, but the patient succumbed to a massive secondary hæmorrhage. The post-mortem examination revealed a large mass of growth in the lower lobe, well defined and with no sign of metastasis although it had been present for 7 years. Histologically it resembled other benign bronchial tumours, but there is no doubt that submucous infiltration extended along the bronchus itself from the tumour.

CASE 3.—This patient, a man aged 42, had had a chronic empyema for 6 years and several operations had been performed upon it until the presence of an obstructing bronchial polyp was demonstrated by Mr. Roberts. The polyp was situated at the origin of the right main bronchus and histologically resembled a bronchial adenoma. A year after this I bronchoscoped the patient and found the appearance quite different. Instead of a solitary polypoid tumour the lumen of the main bronchus was almost completely obstructed by an encircling, infiltrating, nodular growth which had all the appearances of a carcinoma except that it was not ulcerated. Isolated submucous nodules extended up to the carina and even into the lower end of the trachea. Histologically it proved to be still like the benign bronchial polypoid tumours.

FIG. 4.—Parabronchial tumour remaining five years after destruction of intrabronchial polypoid tumour. (Mr. J. E. H. Roberts's case.)

I was considerably perplexed by this series of tumours, all of which from their length of history and behaviour appeared to be benign, and yet in two there was definite infiltration. By good fortune I met with a case which I think provides the solution to the problem.

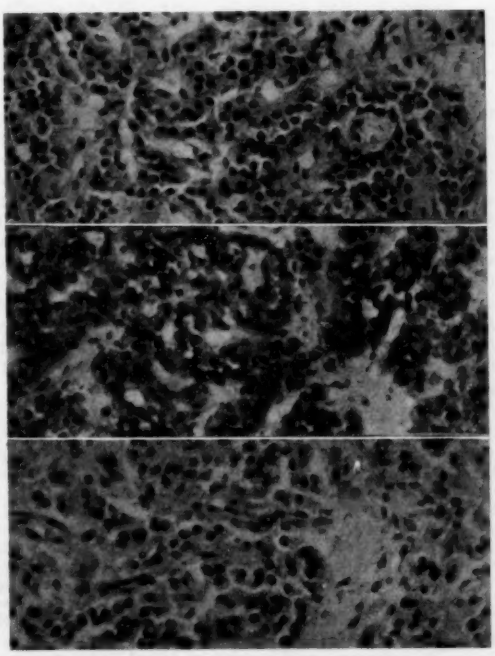

FIG. 3.—Photomicrographs of three bronchial adenomata to show similarity of structure.

A woman of 53 had had cough, dyspnœa, and stridor for 4½ years and, in fact, had been examined 4 years before when nothing had been discovered to account for her symptoms. She came under the care of Dr. Geoffrey Marshall at which time she was suffering from gross respiratory obstruction. Lipiodol examination showed a most striking appearance: the ripple effect of the tracheal rings quite clearly extended over the surface of the projection made by the tumour into the lumen of the trachea (Fig. 5). At tracheoscopy, performed with Mr. R. J. Cann, it was quite clear that the sessile mass which nearly filled the trachea was arising in the tracheal wall deep to the cartilaginous rings but was pushing its way between them (Fig. 6). Its general appearance was that of the benign adenomatous polyps seen in the larger bronchi. Prof. G. W. Nicholson reported on the biopsy fragment that it had the appearance of a mixed salivary tumour. The mass has almost completely disappeared after a course of deep X ray therapy. This case is reported elsewhere (Cann 1938).

I think in this case we have the clue to the explanation of our difficulties. The tumour clearly arose from a mucous gland situated deep in the tracheal wall; this is shown by the microscopic and macroscopic appearances. The presumption is strong that the bronchial polypoid tumours have a similar origin and, if this is so, we have no difficulty in explaining the apparently anomalous cases which infiltrate locally and continue to grow slowly for many years but do not metastasise. They are cousins to the mixed salivary tumours with whose behaviour we are thoroughly familiar in the parotid. The change in appearance of the tumour in Case 3 is now not confusing but confirming. It is, as we

well know, just what happens in many mixed parotid tumours that have existed for many years as an encapsuled mass: suddenly they begin to grow and infiltrate locally although still not metastasising.

FIG. 5.—Paratracheal neoplasm causing almost complete occlusion.

An origin in bronchial mucous glands has been suggested by more than one writer, but so far as I am aware this suggestion has always been made as a result of a process of exclusion. The evidence I have brought forward is more in the nature of direct proof.

TREATMENT

The treatment of these tumours needs careful consideration. Of the fibromata and similar less common tumours removal piecemeal by forceps is said to be simple and reliable, and Zamora (1931) and Negus (1933) have treated cases by this method. My own case of fibromatous polyp was too firm to be removed in this way and I had to use radon, which was completely successful. The benign adenomatous polyps usually demand different treatment from simple forceps removal. This is sometimes easy and effective and occasionally the whole polyp can be avulsed or is coughed up. In most, however, it is a difficult and unsatisfactory method, partly on account of the fierce hæmorrhage that can occur and also because of secondary extensions between the rings of the bronchial wall. Diathermic coagulation is, I believe, not only ineffective but extremely dangerous and should never be used. It involves handling a long slender electrode and trying to destroy a mass which is not only adapted to the lumen of the bronchus but may also extend through its wall. It is impossible to do this without the risk of sloughing, necrosis of cartilage, or secondary hæmorrhage from a large vessel. I have seen sloughing of the main bronchus and a fatal hæmorrhage follow the treatment.

FIG. 6.—Endoscopic view of tracheal tumour. Note how the tumour definitely arises outside the cartilaginous rings.

It appears that deep X rays will cause the polyp to disappear and Manges, in 1934, reported five cases treated in this way which had survived many years—two nearly 10 years, one 6 years, and two over 3 years. There is little doubt that most of the patients reported as having survived for many years after deep X rays for malignant disease of the lung were really suffering from a benign bronchial polyp. Manges's cases were originally reported by him as such. It seems, however, rather unsatisfactory to irradiate the inevitably large area for such a small lesion, especially as we have a ready means of direct local attack by the use of intrabronchial radon.

My own practice is to attempt to remove the tumour with forceps and, if successful, I still apply a radon container to the site of the lesion. If unsuccessful I insert a container alongside the polyp. On one occasion I failed to get the container beside the polyp and left it immediately above it, but with success. I usually use twelve seeds of 1 millicurie each with total screenage of 0·6 mm. of platinum and leave them in place for 5–7 days. At the end of this time the polyp is small, shrunken, and covered with a slough, and if bronchoscopy is performed three or four weeks later all signs of the growth have gone. I originally used twelve seeds of 1·5 millicuries but I am convinced that this is too big a dose and am, in fact, trying to reduce the dose even further. I have treated 11 patients in this way; the first as long as five years ago and he still remains free from all signs of recurrence.

(To be concluded)

GRANULOCYTOPENIA FOLLOWING THE ADMINISTRATION OF SULPHANILAMIDE COMPOUNDS

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A LARGE number of toxic effects following the administration of the sulphanilamide group of drugs has now been reported. Most of these are of minor importance, causing usually not more than slight discomfort to the patient. Among them however severe granulocytopenia is noteworthy in having caused or at least been a factor in several deaths. One case of severe granulocytopenia and a second of sudden leucopenia arising during Prontosil and sulphanilamide treatment are described below. A short analysis of ten other cases recorded elsewhere has also been made in an attempt to discover in them common features which may help in the prevention, recognition, and treatment of this condition.

CASE RECORDS

CASE 1.—A woman of 23 was admitted to Queen Charlotte's Isolation Hospital on April 28th, 1938, with severe puerperal infection due to *Streptococcus hæmolyticus* Group A. She had been given sulphanilamide 2 g. in the 24 hours preceding admission and during that time her temperature had risen to a maximum of 106° F. Because of the obvious severity of the infection she was given prontosil rubrum by mouth and prontosil soluble by intramuscular injection rather than sulphanilamide (Colebrook and Purdie 1937). Fig. 1 shows the pulse-rate, temperature, drug dosage, and results of blood examinations during the first four weeks after admission. The initial response to treatment appeared to be good

until May 4th when, following a rigor and elevation of pulse-rate and temperature, there were abdominal signs suggesting an extragenital spread of the infection. The second rise in temperature and pulse-rate on May 13th was not associated with signs of spreading infection, but, as this was thought nevertheless to be the most probable cause, prontosil, which had been omitted for three days, was started again. Vomiting on the 14th and 15th prevented the retention of the drug by mouth and on the evening of the 15th a drip intravenous injection of normal saline containing 0·8 per cent. sulphanilamide was given instead. This was continued for 27 hours during which the patient received 8 g. of the drug, and in this period her vomiting ceased and her pulse-rate and temperature fell to normal. On May 17th her temperature was again elevated and while considering whether or not further chemotherapy was indicated a blood count was done. This showed marked secondary anæmia and severe granulocytopenia. Pentnucleotide 0·7 g. was given by intramuscular injection and repeated the following morning. A drip transfusion of defibrinated blood was started on May 18th, 1250 c.cm. being given over a period of 28 hours. Pentnucleotide injections 0·35 g. were continued twice daily for 5 days. The patient was discharged well on June 4th with a white cell count of 7550. The total combined dosage of prontosil and sulphanilamide was 61·3 g. given over a period of 20 days. The only other drug which might have been a factor in the production of the agranulocytosis was Allonal, of which ten tablets, each containing 0·034 g. amidopyrine, were given over a period of 21 days. There was no evidence of inflammation of the throat, though a swab taken on May 18th yielded a heavy growth of *Str. hæmolyticus* Group A. On May 14th a bullous eruption containing sterile fluid appeared on the left side of the face.

CASE 2.—A woman of 33 was admitted to Queen Charlotte's Isolation Hospital on May 22nd, 1938, with moderately severe puerperal infection due to *Str. hæmolyticus* Group A. During the three preceding days she had been given prontosil rubrum by mouth and prontosil soluble by intramuscular injection, 4·95 g. in all. After admission sulphanilamide was administered by mouth in the dosage shown in Fig. 2. The initial response to treatment was not

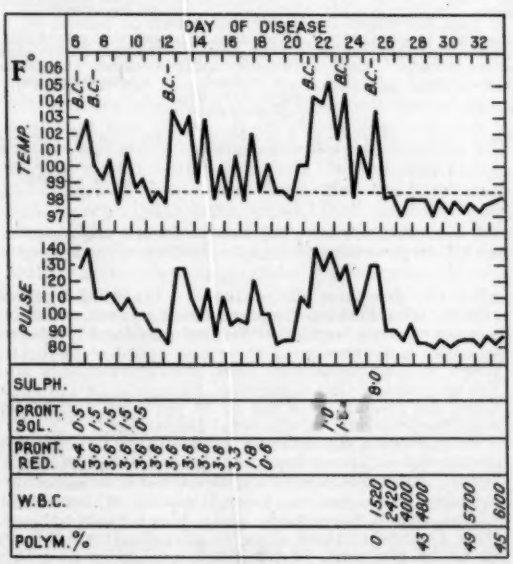

FIG. 1.—Chart in Case 1, showing severe granulocytopenia. (B.C.– = negative blood culture; dosage of drugs is given in grammes.)

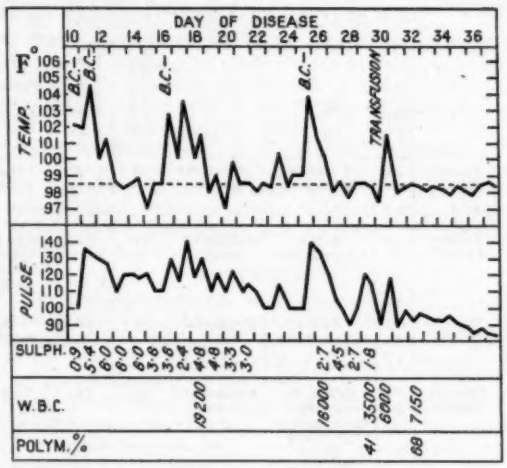

FIG. 2.—Chart in Case 2, showing leucopenia.

entirely satisfactory, as is indicated by the persistent comparatively high pulse-rate. The recurrence of pyrexia on May 28th and again on June 6th was each time associated with symptoms and signs of a spreading infection of the genital tract. The leucopenia which developed between June 7th and 10th was not accompanied by objective findings except the rather marked rise in pulse-rate in the morning of the 10th. At that time there was also a definite secondary anæmia (Hb. 56 per cent., red cells 2,600,000). The sulphanilamide was discontinued and the patient was given pentnucleotide 0·35 g. twice daily by intramuscular injection and a transfusion of 600 c.cm. of defibrinated blood. Within three days the white cell count was normal. Fig. 2 shows the pulse-rate, temperature, drug dosage, and leucocyte counts during the first four weeks of the patient's hospitalisation. Altogether she received 68·45 g. sulphanilamide and prontosil over a period of 22 days. She had also been given five tablets of allonal over a period of 8 days. She was discharged well on June 25th when her white count was 8250.

Since prontosil treatment was instituted in this hospital 233 patients have received 20 g. or more of this drug or of one of its derivatives. The two cases recorded above are the only ones in which a toxic effect on the leucopoietic system has been demonstrated. They resemble each other in that neither responded well to treatment and both received rather larger drug dosage for a longer time than usual. Case 1 illustrates the danger into which one may fall unless special precautions are taken. In retrospect it seems likely that the pyrexia, rapid pulse-rate, and vomiting of May 13th, 14th, and 15th were toxic manifestations and that had blood examinations been made then the granulocytopenia might have been discovered in its early stages.

Leucocyte counts are now done frequently in those cases which show a secondary rise in temperature or pulse-rate during the course of treatment, and in all cases when the administration is continued beyond ten days. The frequency with which blood examinations are made varies somewhat with the patient's clinical condition. It seems, however, that because of the suddenness with which leucopenia may develop, as demonstrated by Case 2 and those of Young (1937) and McGuire and McGuire (1938), the interval should not be longer than three days. The importance of the drug allonal as an ætiological factor

TABLE SHOWING MAIN DETAILS OF TEN CASES OF GRANULOCYTOPENIA RECORDED ELSEWHERE

Reported by—	Age and sex.	Disease.	Drug.	Total dosage (grammes).	Duration of treatment (days).	Premonitory signs and symptoms.*	Duration (days).†	White cells.	Polys. (%).	Late signs and symptoms.	(a) Treatment and (b) result.
Borst (1937)	61 F.	Urinary infection.	Prontosil flavum.	60	39 (interval of 8 days)	Raised pulse-rate.	7	(1) 1225 (2) 960	2·7 1	Difficulty in swallowing. Throat red.	(a) None mentioned. (b) Died day after agranulocytosis was discovered.
Young (1937)	53 M.	Acute rheumatism.	Sulphanilamide.	54	18	Rise in temperature. Clinical condition poor.	4	1800	0	—	(a) Pentnucleotide 0·7 g. (b) Died day after agranulocytosis was discovered.
Model (1937)	20 M.	Acute rheumatism.	Prosepta-sine.	54	18	None mentioned.	—	(1) 600 (2) 300 (3) 1000	— — 0	Exudate on pharynx. Hb. 45%, red cells 2·8 million.	(a) None mentioned. (b) Died day after agranulocytosis was discovered.
Plumer (1937)	54 F.	Subacute bacterial endocarditis (positive blood culture).	Sulphanilamide.	46 ±	35	Vomiting.	3	(1) 400 (2) 1600	0 —	Gangrenous infection of pharynx.	(a) None mentioned. (b) Died day after agranulocytosis was discovered.
Jennings and Southwell-Sanders (1937)	39 F.	Dysentery (Flexner).	Sulphanilamide.	94·5	21	Dysphagia. Temperature 101° F., previously normal.	3	(1) 2000 (2) 444	2 0	Angina. Fever to 103° F. Hypochromic anæmia.	(a) Campolon 2 c.cm. Pentnucleotide. (b) Recovered.
Schwartz et al. (1938)	32 M.	Chancroid.	Sulphanilamide.	56·6	21	None. Patient felt well.	—	(1) 3900 (2) 2000 (3) 800	0 — —	Temperature to 104·9° F. Ulceration of tonsillar region. Icterus.	(a) Typhoid vaccine intravenously. Blood transfusion. Liver extract. Pentnucleotide. (b) Died 5 days after agranulocytosis was discovered.
Berg and Holtman (1938)	22 M.	Acute gonorrhœal urethritis.	Sulphanilamide.	38	27 +	Vomiting. Temperature 104° F.	1	Marked leucopenia.	0	Necrosis of pharynx.	(a) Pentnucleotide. Liver extract. (b) Died 3 days after agranulocytosis was discovered.
McGuire and McGuire (1938)	35 F.	Rheumatoid arthritis.	Sulphanilamide.	30–31	33	Temperature 104° F., pulse 130. Feeling weak. Membrane on pharyngeal wall. Paronychia.	2–3	450	0	Ulceration of throat.	(a) Intramuscular injections of blood. Pentnucleotide. Stimulating doses of X ray over long bones. (b) Recovered.
Brown (1938)	22 F.	Puerperal infection (*Str. hæmolyticus* Gr. A).	Prontosil soluble and sulphanilamide.	78·5	17	None other than rise of temperature to 104° F.	1	(1) 1500 (2) 450	— Few	Urticarial rash of vulva. Positive blood culture (*Str. hæm.* and *Staph. aureus*).	(a) None mentioned. (b) Died 5 days after agranulocytosis was discovered.
Alpert and Forbes (1938)	11 F.	Multiple arthritis.	Sulphanilamide.	12·2	6	Pyrexia.	1	(1) 3200 (2) 2000	0 0	None mentioned.	(a) Convalescent serum. Blood transfusion. Liver extract. (b) Recovered.

* Signs and symptoms present about the time the granulocytopenia was discovered, and which may have been due to that condition.
† Length of time premonitory signs and symptoms were present before blood examination revealed the condition of the leucocytes.

in our two cases is not very clear. It is well known that amidopyrine may cause agranulocytosis, and for that reason the use of allonal has now been discontinued in this hospital.

CASES RECORDED ELSEWHERE

In addition to the ten cases summarised in the accompanying Table, others have been less fully reported. Long and Bliss (1937) mentioned two cases of agranulocytosis associated with sulphanilamide therapy. One of these recovered without any special treatment; the other, complicated by extensive intracranial thrombosis, ended fatally. Mitchell and Traschler (1937) recorded a fatal case in a child treated with sulphanilamide for chronic infective arthritis. Hohman (1938) and Bernstein (1937) reported cases of relative granulocytopenia during sulphanilamide therapy which showed normal blood pictures soon after the drug was discontinued. Bigler and others (1938), after making frequent blood examinations on a series of cases, concluded that sulphanilamide seemed to cause a depression of the white count even to the point of leucopenia and that granulocytopenia did not accompany this depression, though in two of their cases the granulocytes fell to 34 per cent. and 36 per cent. respectively, of the total leucocytes.

Of the cases summarised in the Table two present additional points of interest. McGuire and McGuire (1938), after their patient had recovered from agranulocytosis, gave her a second course of treatment during which they made daily blood examinations. Over a period of three days the granulocytes fell from 80 to 35 per cent. of the total leucocytes and this while the patient was taking the comparatively small dose of 1 g. of sulphanilamide daily. Alpert and Forbes (1938) concluded that sulphanilamide caused an initial leucocytosis followed by a considerable

depression in the number of granulocytes. It seems doubtful if the leucocytosis in their case was in fact due to sulphanilamide because they record an equally high leucocyte count in the same patient later when the drug had not been given for some time.

PREVENTION AND TREATMENT

It is now generally conceded that in certain susceptible individuals the administration of sulphanilamide or prontosil may lead to severe granulocytopenia. That the fatality-rate of such cases is extremely high is shown by the small series analysed here. Everyone responsible for the administration of these drugs should therefore take all reasonable precautions to prevent the establishment of this dangerous condition.

Conclusions drawn from the analysis of a small series are notoriously liable to inaccuracy, but a few generalisations may nevertheless be made. In only one case can the dosage be considered excessive, and this was in one of the three which recovered. The lowest total dose given to an adult (30 g.) was about the amount that is usual here in moderately severe puerperal infections. The length of time over which the drug is taken has perhaps more significance; this period in all but one case (an emaciated child) was more than two weeks.

The value of premonitory signs and symptoms is not easy to estimate. The most constant of these is pyrexia or an increase in the pyrexia already present. This probably does not in fact precede the onset of granulocytopenia, but does appear before the condition becomes well advanced and at a time when treatment might be effective. When pyrexia recurs or increases during sulphanilamide or prontosil therapy, especially in those infections which are known to respond to such treatment, granulocytopenia should be suspected until the question is settled by examination of the leucocytes. It is well known that "drug fever" may occur in the absence of toxic effects on the leucocytes, but this is no reason for disregarding the possibility of the more serious condition.

In regard to treatment, the most important step is of course to discontinue the administration of the drug. Pentnucleotide seems definitely valuable, for in each of our cases an increase in the leucocytes followed the administration of this drug before other treatment was given. Both of our cases showed a moderately severe anæmia, and blood transfusion was for that reason doubly indicated. Defibrinated rather than citrated blood was used, because Colebrook and Storer (1924) have shown that anticoagulants damage the leucocytes and we considered that it was important to provide additional leucocytes in as healthy a condition as possible. Liver extract should also be given.

It has been suggested by Hohman (1938) that routine white cell counts should be done on all patients receiving sulphanilamide. Young (1937), on the other hand, maintains that this measure is not sufficient to prevent fatal granulocytopenia and reported a case to illustrate the point. He (1938) thinks that the drug should be discontinued if toxic symptoms appear. Toxic symptoms of some sort arise in a high percentage of those receiving the drug and to discontinue it would often be to the patient's disadvantage. Leucocyte counts if done frequently enough in all cases would no doubt obviate the danger of severe granulocytopenia. This seems, however, an unnecessarily arduous task. The course to be expected in infections caused by *Str. hæmolyticus* Group A after adequate drug treatment has been instituted is well known. It is in those cases which do not show this typical response that frequent leucocyte counts are important.

The prognosis in any given case before treatment is started depends probably on two factors: first, the extent to which the original infection has been controlled before the onset of severe granulocytopenia, and, second, the duration of the condition before its recognition. If this is true the outlook will not be good when the drug is given empirically for infections in which there is no evidence of its effectiveness. Such experimentation is not justifiable unless every precaution can be taken to prevent harmful sequelæ.

CONCLUSIONS

(1) Granulocytopenia may occur after or during treatment with the sulphanilamide-prontosil group of drugs. It has a high fatality-rate.

(2) Routine leucocyte counts are not necessary in all patients receiving the drugs.

(3) Toxic signs and symptoms in the absence of granulocytopenia do not constitute an indication for stopping treatment in conditions in which the drug is known to be effective.

(4) Frequent blood examinations should be made on all cases showing an atypical response to treatment.

(5) The duration of the treatment is probably a more important factor than the total dosage of the drug.

I wish to express my thanks to Dr. L. Colebrook for advice and assistance in preparing this paper, to Dr. R. M. Fry and Dr. E. D. Hoare for doing the blood counts, and to the members of the consultant staff of Queen Charlotte's Hospital for permission to publish the details of the cases.

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THE LANCET 100 YEARS AGO

November 3rd, 1838, p. 236.

From a leading article.

It has always been felt in public offices that old men, who have even gone through a meritorious career, are very difficult to deal with. This was felt with the judges before the salaries were arranged, so as to tempt them to retire. Young men are expressly excluded from office, but old men, fallen into a second childhood, are disqualified by no similar regulations. This often leads to deplorable results. The septuagenarian is the last to discover that he is no more what he was—that he has outlived his powers;—instead of quietly retiring from the scene, crowned with the glory of his earlier achievements, he lingers like a late wearisome guest, destroying his reputation, till every one feels his imbecility, and only recollects his usefulness. . . .

Like CATO, we never like to see faithful servants, or even old horses, thrown aside, like broken pitchers; let them be led off to end their days in green parks, and a quiet retirement, but let not the old roadsters, because they have a colt's tooth, and can prick their ears at thunder, insist upon breaking their own knees and other people's necks.

BULGARIAN TREATMENT OF POST-ENCEPHALITIC PARKINSONISM

A COMPARISON WITH ENGLISH BELLADONNA

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THE Bulgarian belladonna treatment of post-encephalitic Parkinsonism elaborated by the chemist, Ivan Raeff, has been used extensively on the Continent and many successes have been claimed. The only work reported in this country is by Neuwahl and Fenwick (1937) who treated two cases with good results. The object of the present work was to compare the English and Bulgarian roots when the decoctions were made in the same way, and given in the same quantities. For this purpose patients were selected whose previous histories were known and records of the drugs and dosages kept. Such material was available in the Maida Vale Hospital out-patient department. With the exception of Case 2, who was under the care of Dr. Wilfred Harris, all the patients were admitted to the beds of Prof. F. L. Golla, under whose supervision this treatment was carried out.

TREATMENT

The patients were first treated with a course of Bulgarian decoction (B) for a period varying from 3–13 weeks, the average being 4–5 weeks. Any improvement was noted. The same quantity of English belladonna (E) was then substituted without the patients being told of the change. The object of this was to eliminate the suggestion factor which plays so large a part in any treatment of post-encephalitics. After a week's treatment with the E^1 decoction, E^2 decoction (English belladonna decocted in acid alcohol) was substituted in a similar manner.

In assessing the influence of this treatment, attention was paid to rigidity, tremors of the limbs and tongue, sialorrhœa, speech, oculogyric crises, and general health. The treatment was discontinued by a process of reduction of dosage and the patients were sent home on the medicine that they had been receiving before admission. Four cases were seen a week after discharge and letters were received from the remainder at periods of from one to four weeks after their return home. This programme was carried out in all cases except Nos. 1, 2, and 4.

The technique elaborated by Ivan Raeff was followed as far as possible. The patient was instructed to sleep on his right side. After two hours' sleep he was wakened and given a drink of decoction. Following this, as much hot milk as he cared to drink was given during the night. Pill "No. 3" was given on waking in the morning, followed by a cup of hot milk or tea. Epsom salts were given every morning before breakfast. Throughout the day at approximately 2-hourly intervals a piece of root "No. 4," the size of a grain of wheat, was chewed and then swallowed. The mouth was often washed out as the root is very bitter. In all, 6 to 7 pieces of this root were chewed every day. Cod-liver oil and malt ($\frac{3}{5}$ ss t.d.s.) was given if the patient could tolerate it. The diet was simple; alcohol, red meat, "fat soups," spices, and condiments were forbidden. The patient remained in bed for the first three days.

THE DECOCTIONS

(1) Bulgarian belladonna decoction (Raeff): 30 grains of root "No. 1" and one powder "No. 2" are boiled in 600 grammes of natural white wine. From the moment of boiling, it is boiled for 10 minutes, cooled, and filtered. The filtrate is stored in a cool place before use.

(2) English belladonna (E^1): Exactly the same quantities of dry English belladonna root and white wine were decocted for the same length of time. Powder "No. 2," which after a few trials had been omitted from the Bulgarian decoction as it was found inactive, was also omitted from this decoction.

(3) English belladonna decoction (E^2) (Dale): For this 30 grammes of dry English belladonna root were boiled in 600 grammes of a solution containing 10 per cent. alcohol and 0·5 per cent. tartaric acid; this in Sir Henry Dale's opinion is comparable to ordinary white wine.

The first dose was from ½–1 oz., depending on the general health and previous medication. If this was well tolerated, the dose was increased on the second and third night to 1½ oz. Subsequent increases were determined by the clinical state of the patient, so that each received the maximum dose which he could tolerate. It was found, however, that if improvement took place, it did so with 1–2 oz. and no advantage was obtained from higher doses.

RESULTS

In all, 14 patients were treated, 7 men and 7 women: 8 patients—4 men (Cases 3, 4, 12, and 14) and 4 women (Cases 1, 6, 9, and 13)—had had encephalitis lethargica diagnosed during the illness; 1 man (Case 5) and 3 women (Cases 7, 10, and 11) had had illnesses suggestive of encephalitis; and 2 men (Cases 2 and 8) no history of preceding illness. In all the patients Parkinsonism was the chief feature of the condition, except Case 14 who had persistent deviation of the eyes; and Case 8, who in addition to extrapyramidal rigidity had involuntary movements resembling torsion spasms. Eleven patients had received previous treatment at Maida Vale. The record of treatment was available in 3 patients for over ten years, in 2 for six years, in 3 for over three years, and in 2 for a year. In Case 2 no definite records of dosage or drugs were available. Cases 5, 8, and 14 had received no previous medication (see Tables I and II).

With the exception of Cases 4, 12, and 14, all the patients were definitely benefited within a week of starting the treatment. The rigidity and general mobility were improved in 10 cases (1, 2, 3, 5, 6, 7, 9, 10, 11, and 13). Tremor was slightly less in 4 cases (3, 5, 9, and 11) and unchanged in 7 cases (1, 2, 6, 7, 10, 12, and 13). There were fewer oculogyric crises in Case 3; in Case 4 after an initial decrease, the crises returned in their usual number. In Cases 1 and 6 the crises were more common though they were less severe and of shorter duration than before. Ten patients gained weight; the average gain being 5 lb. Case 9 lost 4 lb. The majority of patients experienced dizziness, nausea, and headache in the mornings, and in a few this continued until noon.

The change to English belladonna was made in all but 3 patients (1, 2, and 14) and none of them noticed the substitution the following morning. Patients 5 and 12 said throughout that they noticed no difference from the English belladonna whether decocted in wine (E^1) or in 10 per cent. alcohol (E^2). With the exception of Case 8, who was atypical, and Case 13, whose rigidity increased owing to reduction in dosage, there was no change in the clinical signs on substitution of the English root, but there was a noticeable increase of toxic symptoms in the E^2 decoction. This was seen in 6 patients (3, 7, 9, 10,

11, and 13) who all felt worse because of increased nausea, giddiness, and headache in the mornings. These six patients did not show this difference on the E^1 decoction. Cases 8 and 13 showed the increase of rigidity on the E^2 decoction. The evidence of Case 4 who stated that his rigidity improved on English belladonna is of doubtful value, as his statements always conflicted with physical signs. Of those who were unable to read small print during the Bulgarian treatment, not one noticed any difference when English belladonna was substituted.

During the treatment nursing was difficult. The reaction at night varied from mild confusion to disorientation and delirium. Some of the patients would get out of bed and perform such activities as washing. This uncertain behaviour necessitated continual observation and although such reactions were usual only in the first week, they would occasionally come on much later on in the treatment, and, therefore, the supervision could not be relaxed. This would be serious if the treatment was given at home.

When following up the condition of the patients after they had left hospital and were receiving their old medicines, it was found that three patients (1, 10, and 13) had maintained almost entirely the improvement they had made. Four patients (3, 6, 7, and 12) wrote saying that they felt no benefit for having been in hospital, and the remainder (Cases 2, 4, 5, 9, and 11) that they had been getting worse since discharge. Case 8 must be excluded as he received a course of Bulbocapnine injections for his spasmodic movements before leaving the hospital.

DISCUSSION

It is evident that the patients who were poorly nourished and who had received very little previous medication benefited most from this treatment. Those patients who over a period of years had received moderate doses of the tinctures of stramonium, belladonna, and hyoscine, did not do so well as those who had been treated less vigorously. Patients who had tolerated large doses of these drugs previously could also tolerate the Bulgarian belladonna well, and could take up to 3 oz. of the decoction. Those in whom there was a decrease in rigidity and tremor, on say 1½ oz., were not further benefited by an increase in dosage, but merely felt the effects of mild belladonna poisoning. In patients who had not previously had belladonna, this reaction could be extremely severe as in Case 14, whose temperature rose to 103° F. during the first night. The raised pulse-rate (130), cyanosis, and delirium continued until noon the following day. This developed on an initial dose of 1 oz.

From this evidence it is clear that Bulgarian belladonna has no specific therapeutic properties not contained in English belladonna. The fact that patients experienced no discomfort or relapse on the E^1 substitute but were more toxic and ill on the E^2 substitute, suggests that the wine was less effective in dissolving the alkaloids from the root than the acid alcohol mixture. The important fact is the absence of clinical relapse in the Parkinsonism. In considering the improvement and benefit obtained from the initial treatment, two facts must be noted: firstly, the majority of the patients were receiving small doses of their medicine prior to admission; and secondly, that in the Bulgarian treatment we are undoubtedly giving very large doses of belladonna. The subsidiary drugs used in the Bulgarian treatment appear to be inactive, as their omission made no difference to the clinical condition of the patients.

TABLE I—SUMMARY OF CASES

Case.	Sex.	Age on admis.	Attack of encephalitis.	Onset of Parkinsonism.	Bilateral or unilateral.	Tremor.	Rigidity.	Oculogyric crises.	Sialorrhœa.	Mental changes.	Speech.*	Result of Bulgarian treatment.
1	F.	38	1922	1922	B.	++	++	+	+	−	I.	Improved.
2	M.	29	?	1931	U.	±	+	−	−	−	S.	Improved.
3	M.	30	1919	1928	B.	++	++	++	−	±	I.	Improved.
4	M.	40	1918	1919	B.	+	++	−	−	+	I.	Worse.
5	M.	33	?1930	1937	B.	−	+	−	−	+	N.	Improved.
6	F.	28	1915	?1925	B.	+	++	+	+	−	I.	Slightly improved.
7	F.	28	?1927	1929	B.	+	++	−	−	−	S.	Improved.
8	M.	19	?	1921	U.	±	+	−	−	−	N.	Slightly improved.
9	F.	23	1931	1931	B.	±	++	−	−	+	S.	Improved.
10	F.	26	?1917	1928	B.	++	++	−	−	−	I.	Improved.
11	F.	32	?1926	1928	U.	+	+	−	−	−	N.	Improved.
12	M.	33	1924	1924	B.	+	+	++	−	−	I.	No change.
13	F.	38	1918	1928	B.	+	++	−	−	−	S.	Improved.
14	M.	33	1921	1921	B.	±	±	+	−	+	N.	No change.

* Speech: I. = Inarticulate. S. = Slow. N. = Normal.

TABLE II—PREVIOUS TREATMENT

Case.	Years of treatment.	On admission (t.d.s.).			Maximum doses (t.d.s.).		
		Tr. Stramonii (minims).	Tr. Belladonnæ (minims).	Hyoscine hydrobrom. (grains).	Tr. Stramonii (minims).	Tr. Belladonnæ (minims).	Hyoscine hydrobrom. (grains).
1	10	Taken Genoscopolamine III 4-hourly.					
2	6	?	?	?	?	?	?
3	7	50	10	1/100	60	10	1/100
4	3	60	10	1/100	60	30	1/100
5	—	—	—	—	—	—	—
6	10	20	20	0	40	30	1/150
7	6½	40	0	1/100	40	0	1/100
8	—	—	—	—	—	—	—
9	3	10	0	1/150	40	0	1/150
10	1½	0	0	0	20	0	1/150
11	1½	20	0	1/100 (b.d.)	20	0	1/100 (b.d.)
12	10	30	15	0	75	30	1/75
13	4½	50	0	1/150 (b.d.)	50	0	1/150 (b.d.)
14	—	—	—	—	—	—	—

SUMMARY

1. Fourteen patients suffering from post-encephalitic Parkinsonism were treated with decoction of Bulgarian belladonna. Improvement was found in 10 patients who showed decreased rigidity; of these, 4 also showed diminished tremor. The oculogyric crises were not much improved. Ten patients also gained weight.

2. On substituting English belladonna decocted first in wine and later in acid-alcohol the improvement in the Parkinsonism was maintained. The patients did not at first notice the substitution. On the acid-alcohol decoction signs of belladonna poisoning became pronounced in 6 cases; this may be because it contains more alkaloids of belladonna than the wine decoction.

3. From this series of cases there is no evidence that the therapeutic properties of Bulgarian belladonna differ from those of its English equivalent.

I wish to thank Prof. F. L. Golla, who suggested this work, for his advice and direction, and for permission to report the cases; Sir Henry Dale for a communication regarding the acid-alcohol equivalent of white wine; and Miss Resdon, dispenser to the hospital, for the preparation of the decoctions.

REFERENCE

Neuwahl, F. J., and Fenwick, C. C. (1937) *Lancet*, **2**, 619.

A NEW CARBON-DIOXIDE ABSORBER

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The advantages of carbon-dioxide absorption methods considerably outweigh their disadvantages. The technique permits the use of rare anæsthetic gases, the cost of which would normally be prohibitive. It prevents the loss of body heat and of water vapour from the lung, and ensures that much less work is done by the body owing to quieter respiration. The inhalation of moist gases obviates sore-throat and drying of the respiratory mucous membrane. Fire risk is almost eliminated, and there is no smell of ether in the theatre. Lastly, the method is extremely economical in use.

What are the requirements of a carbon-dioxide absorber? (1) It must give adequate controllable absorption and should be capable of removing all the carbon dioxide from the expired gases over a long period. (2) It must be portable. (3) There must be adequate heat conduction away from the absorber. (4) The valves, chambers, and ducts inside the absorber must allow the unobstructed passage of gases. (5) It should be gas-tight. (6) The soda-lime must be easily changed.

In the absorber described here, portability has been achieved by fitting the smallest soda-lime container that will give adequate absorption. The large area of metal ensures that the heat is conducted away from the absorber and owing to its long inspiratory and expiratory tubes the gases come to the patient at room temperature and water vapour condensation is at a minimum. Condensation can be very annoying by causing caking of the soda-lime with consequent impedence of respiration. Ease of respiration is assured by the use of large respiratory tubes, valves of large area and extreme lightness, and wide ducts within the absorber chamber itself. It should be as easy to breathe with a satisfactory absorber as with an ordinary bag. The valves, therefore, are all-important and should be very light and absolutely gas-tight. Our machine is maintained gas-tight as a whole by the use of adequate washers with strong screws for the demountable parts. The soda-lime may be changed easily if necessary during anæsthesia by merely turning one valve and unscrewing two wing nuts.

The absorber may be placed in either of two positions in the anæsthetic circuit—close to the patient or remote on the machine. The first position has certain disadvantages and very few advantages. A large amount of heat is generated during the absorption of carbon dioxide by the soda-lime and when the absorber is close to the patient the inspiration of these warmed gases is not pleasant. In this position too the absorber is awkward to hold, and bulky, and unless it is held in the hand the face-piece tends to become tilted and to leak; furthermore, it is difficult to arrange a valve to cut out the absorber when desired. The only advantage of this position is that no extra respiratory tubes are required. On the whole it is preferable to place the absorber in the remote position where it is easily controllable and the cut-off valve can be within easy reach of the anæsthetist. Two respiratory tubes, one for inspiration and the other for expiration, do not disturb the anæsthetist and are as easily manipulated as the usual single tube. The remote position necessitates a circular flow of gases to eliminate dead-space and as dead-space is one of the main causes of inadequate absorption this presents serious problems to the designer. At first it was thought that passing the entire gases through the soda-lime during both expiration and inspiration would give more satisfactory absorption than passing them through during expiration only, but this was found not to be so because dead-space caused poor absorption.

When the circuit was arranged as in Fig. 1A, the carbon dioxide in the expired gases rose to 4 per cent. whereas with a circuit as in Fig. 1B the proportion immediately fell to less than 0·5 per cent. and was often not measurable. In this latter arrangement the gases pass once only through the soda-lime—i.e., on expiration. The expired gases pass through the soda-lime, into the bag, and from the bag through the inspiratory tube to the patient, thus completing a circuit.

The next task was to ensure that the whole apparatus was gas-tight and easy to clean. Soda-

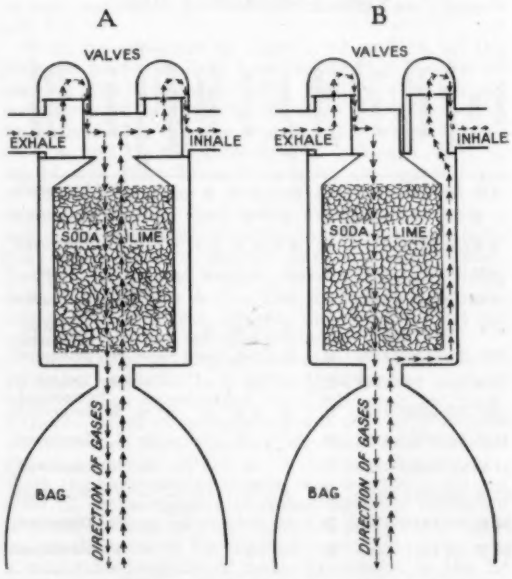

FIG. 1.—Diagram showing alternative circuits.

lime itself presented certain difficulties, which have now been very satisfactorily overcome by the manufacturers of the Wilson product we used and by other firms. For adequate economical absorption soda-lime must be of a certain mesh and must be non-hygroscopic or there will be troublesome heat-production and caking. Soda-lime too should be absolutely dust-free, for, although dust is unlikely to reach the patient with the absorber in the remote position, it may get into the valve control.

DETAILS

The present absorber (Figs. 2 and 3) consists of a pot on top of which are the two valve chambers and the control, which has three positions—namely, "Soda-lime," "Rebreathe," and "Change." Inside the pot is a casing which holds 1 lb. of soda-lime, and attached to the pot itself are two flow-meters, one for basal oxygen and the other for cyclopropane. The outer casing of the pot is held in position by two thumbscrews, so that the pot can be removed very easily and the soda-lime changed quickly when required. The control chamber is large and is easily removed for cleaning and greasing. The position of the inner cage can be so varied as to enable the user to give full absorption

FIG. 2.—Absorber in position (from side).

or any degree of absorption he desires. The valve chambers and valves are large enough to allow easy respiration and are covered with two removable glass domes, so that the anæsthetist can actually see the valves working. The inside of the glass chamber should be smeared with a little soap or Clarocit, which will prevent clouding and ensure fair vision all the time. The valve itself consists of a very thin disc of metal, which rests upon a circular knife edge. The metal disc is enclosed in a small cage, which can be unscrewed, thus enabling the whole to be taken apart easily for cleaning. So light are these valves that when the patient holds his breath they can be seen to lift with each heart-beat. Underneath the pot is the bag, which is big enough for all ordinary purposes.

This absorber will fit into place on a McKesson machine, and is interchangeable with the ordinary McKesson absorber. It may also be used separately and in this case a set of flow-meters is so arranged as to screw on in place of the McKesson unit, and the bag is then arranged at the back of the absorber instead of at the bottom. The ether pot is the

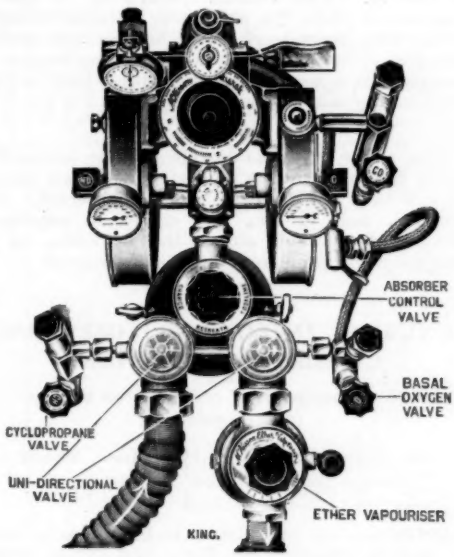

FIG. 3.—Absorber in position (from above).

McKesson one and is placed on the inspiratory side, but it can be placed on the expiratory side if desired.

We have tried to compare the efficiency of the new absorber with that of the various other types in use. We found the proportion of CO_2 in the ordinary old Clover ether apparatus to be as high as 10 per cent. The Boyle gas-oxygen machine gave the next highest figure of 4 per cent. CO_2. The Waters CO_2 canister (which must be held at the patient's mouth) gave figures of less than 0·5 per cent. CO_2—a very creditable performance. Our own absorber, when used, as it should be, by the "circus" technique, gave consistent readings of less than 0·5 per cent. of carbon dioxide, and even when the soda-lime had been in use for six hours this proportion did not increase. Using the absorber so that the gases passed twice through the soda-lime, as in Fig. 1A, the disadvantages of even minute amounts of dead-space very quickly became evident, for the CO_2 rose to 2 per cent. in less than half an hour.

The new absorber is very simple to use. The usual technique is to induce the patient with gas or gas-and-oxygen, and then, when the anæsthesia is quite steady, to shut down the expiratory valve, stop the flow of gas-and-oxygen, and open the basal oxygen flow-meter so as to give a flow of 250–350 c.cm. per minute. Ether is added easily by turning the knob of the ether control. This knob should not be moved beyond the point 1 for about two minutes, and should then be advanced gradually to the mark 2, or even 3. The "full ether" position should never be required. Cyclopropane necessitates a slightly different technique. For this gas it is advisable to have the bag about a third full of oxygen, then to apply the mask to the patient's face, close the valve, and start the basal oxygen flow at 250 c.cm. per minute, and the cyclopropane at 250–500 c.cm. per minute. When the requisite amount of cyclopropane has been introduced into the bag, the flow-meter is then closed.

To change the soda-lime, the handle on the absorber control is turned to "Change," and at the same time the bag control of the McKesson apparatus

is opened. This enables respiration to go on unimpeded while the soda-lime is being changed. Respiration throughout should be slow and shallow, like that of normal sleep. An increasing respiratory excursion is a sure sign that the soda-lime has lost its efficiency and needs changing.

SUMMARY

A new type of carbon-dioxide absorber is described which will maintain the proportion of carbon dioxide at less than 0·5 per cent. for a long period. It is portable, cool in use, and causes no respiratory embarrassment, and allows the soda-lime to be changed easily while anæsthesia is in progress.

UNUSUAL INFECTIONS FOLLOWING CEREBRAL OPERATIONS

With a description of DIPLOCOCCUS MUCOSUS *(von Lingelsheim)*

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ATTENTION has been drawn to the air as a source of surgical infection by Wells and Wells (1936), while Hart (1937) and Ives and Hirshfeld (1938) have reported the contamination of operation wounds by air-borne organisms, usually staphylococci, which can be demonstrated by the exposure of uninoculated plates in the operating theatre. Hart concluded that the air was contaminated by the theatre staff and was able to reduce the number of infections by the exclusion of chronic nasal carriers of this organism. Infections which appear to be air-borne are occasionally encountered after operations for cerebral tumour. These are usually due to organisms recognised as being pathogenic to man, but in the small series reported here bacteria which would normally be regarded as saprophytic have been isolated. In one of our cases a bacterium was isolated from a cerebral abscess; in the others bacteria were isolated from fluid obtained by lumbar or ventricle puncture. Before presumably saprophytic organisms can be accepted as the cause of an infection better evidence than the isolation of the organism must be presented. That the organisms were present in the tissues and were not due to contamination of the specimens is shown by the presence of pus cells and, with two exceptions, by their demonstration in smears of the infected material. Furthermore, in five cases the organism was isolated on more than one occasion from each patient. These findings are recorded in order to draw attention to the fact that bacteria which we have come to regard as being harmless to man may play a serious rôle as pathogens when they come in contact with highly susceptible tissue.

CLASSIFICATION OF ORGANISMS

Organism 1 was seen in moderate numbers in direct films and was isolated from the fluid of both the right and left ventricles and from the lumbar cerebrospinal fluid (C.S.F.) on several occasions after operation for cerebral tumour. Morphologically it was a Gram-negative bacillus with parallel sides and rounded ends; there were three or four flagella at each pole. It was non-acid-fast and non-sporing. The cultural characters of this and the other organisms are summarised in the Table. Organism 1 appears to be a chromobacterium, a genus which is composed of non-pathogenic bacteria present in water, soil, and air. It differs from *Chr. aquatile* chiefly in its lack of proteolytic activity.

Organism 2 was isolated from a cerebral abscess in a patient in whom no primary focus was found during life; a necropsy was not made. It was seen in direct films and isolated in anaerobic cultures from the pus of the abscess, and shortly before the death of the patient it was found microscopically and culturally in the lumbar C.S.F. It appeared to be a Gram-positive bacillus of the diphtheroid type; with methylene-blue it stained irregularly although metachromatic granules were not seen. The classification of this organism presents some difficulty; Andrewes and his colleagues (1923) would exclude it from the genus corynebacterium on account of its strictly anaerobic metabolism. In the classification of Thomson and Thomson (1926) it would fall into Group IV of their diphtheroids.

Organism 3, a pleomorphic Gram-negative bacillus, was isolated from the brain tissue and lumbar C.S.F. after operation for cerebral tumour. The patient recovered. Although direct smears of the C.S.F. showed many polymorphonuclear cells the organism was not seen microscopically. Again the organism is difficult to classify but should probably be placed in the ill-defined genus achromobacterium.

Organism 4 was isolated after operation from the other patient of the series who recovered. Films of the ventricle fluid and lumbar C.S.F. showed pus cells and a small number of beaded Gram-negative bacilli which were arranged in pairs as a wide-angled V and also occurred as isolated organisms. On culture two types of colony were found; the biological characters of these were essentially the same but one produced spores while the other appeared to be an asporogenous variant. This organism presents several unusual features. It was Gram-negative whereas the majority of the spore-bearing bacilli which have been described are Gram-positive. The spores, which were readily produced by the predominant colony form, were wider than the bacillary body and the organism resembled morphologically some of the clostridia; the fact that it was a strict aerobe excludes it from this group and it must be classified in the genus bacillus.

Organisms 5 and 6 were isolated from two cases of cerebral tumour operated upon by the same surgeon in the same operating department on consecutive days. Signs of infection appeared within a few days of operation and numerous Gram-negative diplococci were seen in films prepared from the lumbar C.S.F. and ventricular fluid of one case, while in the other the organism was isolated only on one occasion and at necropsy Dr. Dorothy Russell failed to find any evidence of infection. Culturally and serologically the organisms were alike and will be considered together. Attempts to isolate this bacterium from the throat of the surgeon and his assistants, the air of the theatre, and the saline used at operation all yielded negative results.

Morphologically the organism was a Gram-negative diplococcus about 0·8 μ in diameter; occasionally larger (? involution) forms were seen. Capsules were demonstrated in wet preparations with 15 per cent. Collargol and in smears of peritoneal exudate of infected mice stained by Muir's method. Growth was equally luxuriant on agar, blood agar, or MacConkey. The colonies were mucoid and extended up to 5 mm. in diameter after 48 hours' incubation; they were semi-translucent, being slightly more opaque than colonies of meningococcus. On Löffler there was no pigmentation nor digestion of the medium. Rapid growth occurred on the surface of gelatin but none in the stab; liquefaction was slow and became apparent only after 7 days at 22° C.; it was stratiform in character. On isolation the fermentation of lactose and rhamnose was only apparent after about 3 weeks' incubation; these sugars were fermented within 4 days after the strains had been subcultured for 6 months.

While non-pathogenic to the rabbit, subcutaneous inoculation of mice produced a small abscess from

MORPHOLOGY AND CULTURAL CHARACTERISTICS OF ORGANISMS

Organism No.	Morphology.*	Agar.	Blood agar.	Broth.	Glucose.	Maltose.	Lactose.	Xylose.	Rhamnose.	Litmus milk.	Other reactions.	Metabolism.
1	Gram-negative bacillus; polar flagella.	Yellow dry wrinkled adherent growth.	1·0 mm. dry wrinkled surface, central papilla, effuse periphery, eroded edge.	General turbidity, fine surface pellicle.	A.	A. ±	A. ±	–	–	No change.	H_2S –.	Strict aerobe, opt. temp. 37° C.
2	Gram-positive bacillus.	No growth.	Slow growth. 2 weeks, colonies 2 mm. in diameter, low convex, glistening surface entire edge.	No growth.	–	–	–	–	–	No change.	Serum broth: no turbidity, slight powdery deposit.	Strict anaerobe.
3	Gram-negative bacillus.	No obvious growth after 24 hrs. Small grey convex colonies after 3 days.	24 hrs., 0·5 mm.; 48 hrs., 1·0 mm. Smooth convex colony, entire edge.	No turbidity, flaky deposit which did not break up on shaking.	–	–	–	–	–	Alk.	..	Aerobe.
4 (*a*)	Gram-negative bacillus; oval subterminal spores; peritrichate flagella.	48 hrs., 1·0 mm. grey convex glistening entire edge. Growth adherent to medium.	As agar.	No turbidity, small granular deposit.	–	–	–	–	–	Alk.	M.B. –. Catalase –. NH_3 –.	Strict aerobe, growth 22°–43° C., opt. temp. 37° C.
(*b*)	Gram-negative bacillus; as (*a*) but no spores.	2·0 mm. low colony bevelled edge, flattened surface, ground glass appearance; not adherent.	As agar.	As (*a*).	–	–	–	–	–	Alk.	M.B. –. Catalase –. NH_3 –.	As (*a*).
5 & 6	Capsulated Gram-negative diplococcus.	24 hrs. at 37° C.: 1·0–2·0 mm. high convex, mucoid colony, entire edge.	As agar, no hæmolysis.	General turbidity, powdery deposit.	A.	–	A.	A.	A.	Acid, clot, litmus decolorised.	M.R. –. V.P. –. M.B. reduced. Catalase +. Nitrates reduced NH_3 +, H_2S ±.	Strict aerobe, growth 22°–37° C., opt. temp. 37° C.

NOTES

No strain fermented mannitol, sucrose, or dulcitol. Gelatin was not liquefied by Strains 1–4; there was slow liquefaction (stratiform) by Strains 5 and 6. Indol was not produced by any strain. MacConkey's bile salt medium: Strain 1 produced small pale colonies which became pink in 4 days; Strains 5 and 6 produced large mucoid colonies which were pink in the centre. Pathogenicity to laboratory animals: Strains 2 and 3 not tested; Strains 1, 4 (*a*) and 4 (*b*) non-pathogenic to mice in a dose of 1 c.cm. intraperitoneally; Strains 5 and 6 non-pathogenic to rabbits on intravenous inoculation. See text for pathogenicity to mice.

* Amplified in the text.

A. = acid produced; Alk. = alkaline. – = no change. M.B. = methylene-blue; M.R. = methyl-red; V.P. = Voges-Proskauer reaction.

which the organism could be recovered 7 days later. Intraperitoneal inoculation of 0·05 c.cm. of 18-hour broth culture killed mice in 18–24 hours, and doses as small as 0·0005 c.cm. killed mice irregularly. Post mortem there was enlargement and congestion of the subcutaneous lymph glands and a small sticky peritoneal exudate. The liver, spleen, kidneys, and lungs appeared normal. The organisms could be seen in smears of the peritoneal exudate and sometimes in the heart blood. Mice were killed by 1 c.cm. of Berkefeld filtrate of a 53-hour broth culture within 48 hours of intraperitoneal inoculation, but filtrate heated at 56° C. for 30 minutes was not lethal.

Vaccines were prepared by heating 18-hour broth cultures at 56° C. for 30 minutes; mice were immunised with three intraperitoneal injections and were tested for resistance to infection by the injection of 0·5 c.cm. of broth culture intraperitoneally 7 days after the last dose of vaccine. Mice immunised with vaccine of one strain were found to resist infection with either strain. Both strains were agglutinated to a titre of 1 : 2560 by a serum prepared against one strain, but this serum failed to agglutinate meningococci (Types II and III) in a dilution of 1 : 20, the lowest tested. Dr. W. M. Scott kindly tested one of these strains with antimeningococcal sera and found it was not agglutinated.

The capsulated Gram-negative diplococci (organisms 5 and 6) are thought to be the same as *Diplococcus mucosus* (von Lingelsheim 1906), the description of which is incomplete. Von Lingelsheim described it as a capsulated Gram-negative diplococcus, morphologically resembling the meningococcus but growing readily on agar and on gelatin. He stated (1908) that other workers had found this organism to be pathogenic for mice. Von Lingelsheim's coccus differed from the strains described here only in its failure to liquefy gelatin. The liquefaction of gelatin by the two strains of this series was slow and it is possible that von Lingelsheim did not observe his cultures long enough to detect this property. He found this diplococcus in the nasopharynx and in one case in the puncture fluid (? C.S.F.) of a pneumonia patient with meningeal symptoms. Elser and Huntoon (1909), in a survey of the Gram-negative cocci of the nasopharynx, described the same organism but did not amplify von Lingelsheim's description, neither did they state the frequency of isolation. Wilson (1928) and Wilson and Smith (1928) regarded *Diplococcus mucosus* as a mucoid variant of *Neisseria pharyngis*, a name given by the latter workers to the Gram-negative cocci found in

the normal nasopharynx. The two strains of this series differ from *N. pharyngis* and *N. catarrhalis* in many features, especially in the growth in broth, the liquefaction of gelatin, and the pathogenicity for mice, while growth on MacConkey is not, in our experience, usual with the nasopharyngeal diplococci.

Diplococcus mucosus as listed by Bergey in his "Manual of Determinative Bacteriology" is not the same as von Lingelsheim's organism since he regards the former as synonymous with pneumococcus Type III. Capsulated forms of meningococcus (Baker 1920, Little 1938) and gonococcus (Israeli 1921, Almaden 1938) have been described and there appears to be no adequate reason for excluding this organism from the genus neisseria, with the specific name *mucosus*.

DISCUSSION

The first four organisms of this series belong to the chromobacterium, corynebacterium, achromobacterium, and bacillus groups, of which the only species recognised as pathogenic to man are *C. diphtheriæ*, *B. anthracis*, and possibly *B. subtilis*. *Diplococcus mucosus*, isolated from the last two cases, has been regarded as a mucoid variant of the normal nasopharyngeal Gram-negative diplococci. One would expect to find such bacteria as these in the air of rooms frequented by human beings, and in the absence of irrefutable evidence of infection their presence in pathological specimens would be dismissed as the result of contamination introduced in the collection of the material.

In five of the cases recorded, however, evidence that these micro-organisms were multiplying in the patients' tissues was forthcoming Only two of the patients recovered, but this, by itself, is insufficient evidence of the lethal action of these bacteria for man since all the cases had undergone operative procedures associated with a considerable mortality. In three of the four fatal cases the clinical evidence pointed to infection as the cause of death, and, since the organisms (except 3 and 6) were seen in smears of material sent for examination and five of the bacteria were isolated on more than one occasion from the same patient, the possibility of these being contaminants seems to be excluded.

While these organisms undoubtedly played the rôle of pathogens in the infections from which they were isolated, it must be accepted that their normal existence is saprophytic, and planted in any other tissue would probably be harmless to man. Apparently brain tissue has little resistance to infection and during the prolonged exposure necessary for operation readily becomes a prey to bacteria which fall upon it. While reports of infections with presumably saprophytic organisms have not been found, it is not very unusual to isolate from the central nervous system organisms which are difficult to classify, and it seems likely that other workers have regarded these as contaminants. Such bacteria almost certainly gain entry at the time of operation, although they may pass to the brain from some unrecognised focus as in the case of cerebral abscess from which organism 2 was isolated.

The source of the infection was not traced in any case. Cough plates of the surgeon and assistants and plates exposed in the theatre failed to yield organisms culturally identical with the infecting strains. In regard to the two infections with Gram-negative diplococci which occurred within a few days of each other, it seems likely that the theatre personnel, medical or nursing, was responsible, since this was the same in both cases.

In each of the post-operative cases the infection was presumably air-borne since there was no evidence of failure in the sterilisation of instruments or linen used. While the efficiency of the Cellophane masks worn by the surgeon appeared to be satisfactory, it is considered that the organism must have originated from the nasopharynx of one of the theatre staff, the air probably being contaminated during the preparation of the theatre, when masks are not always worn.

SUMMARY

Organisms which would normally be regarded as saprophytes or contaminants were isolated from six cases of cerebral infection, five of which followed operative procedures. The organism was *Diplococcus mucosus* in two cases.

It is suggested that the brain, exposed for operation, offers little or no resistance to infection even by normally harmless organisms.

I am indebted to Dr. P. N. Panton, who isolated these organisms, for placing the original cultures at my disposal, and to Prof. H. Cairns for supplying me with clinical details of the cases.

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MYELOID LEUKÆMIA

FOLLOWING PERNICIOUS ANÆMIA AND COMPLICATED BY TERTIARY SYPHILIS

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MEDICAL REGISTRAR AT THE HOSPITAL

TRUE pernicious anæmia terminating as myeloid leukæmia is a clinical rarity. The case reported below was complicated by the presence of lesions due to tertiary syphilis.

CASE REPORT

A woman of 56 was admitted to University College Hospital in February, 1935, under the care of Dr. J. W. McNee, complaining of weakness and fatigue for several years and of tinglings in her toes for the past few months. She had been gradually getting worse, but no acute symptoms had led to her admission. The only event of interest in her previous history was pleurisy in 1916.

On admission she was anæmic and breathless on exercise. Her heart was not enlarged but there was a systolic murmur at the apex. Her tongue was smooth and shiny and her nails flat and ribbed. No icterus observed. Liver enlarged two fingers below the costal margin. Spleen not felt. A few small rubbery glands palpable in the axillæ and groins. Central nervous system appeared normal apart from some superficial anæsthesia on the outer side of the ankles and shins. Blood count: hæmoglobin 42 per cent., red cells

SUMMARY OF BLOOD COUNTS

Date.	Progress.	Red cells (millions).	Hb. (%).	Reticulocytes (%).	Colour-index.	White cells.	Differential count.							Remarks.
							P	L	M	E	B	Mc	Mb	
1935 Feb. 15	Before admission.	1·82	47	—	1·3	1,800	—	—	—	—	—	—	—	Mean diameter red cells increased.
„ 23	First admission.	1·48	42	—	1·4	—	—	—	—	—	—	—	—	—
March 1	After 5 days' liver therapy.	1·6	47	10	1·5	—	—	—	—	—	—	—	—	—
„ 8	—	1·82	52	—	1·43	1,777	21	57	18	4	0	0	0	—
„ 22	—	2·36	64	2·8	1·36	1,800	—	—	—	—	—	—	—	—
April 1	—	2·64	66	1·4	1·25	1,300	21	77	2	0	0	0	0	—
„ 15	—	2·96	74	3·4	1·25	3,000	27	50	9	14	0	0	0	—
„ 23	—	3·12	76	2	1·25	2,000	30	38	11	19	0	2	0	—
„ 29 to 1936 Aug. 19	Discharged, attending out-patients' and V.D. clinic.	—	72	—	—	—	—	—	—	—	—	—	—	—
		—	60→76	—	—	—	—	—	—	—	—	—	—	—
Dec. 11	Second admission.	2·19	54	—	1·23	41,300	4	6	0	1	0	73	16	Mean cell diameter 8·7; nuc. red cells 7834.
„ 15	—	1·96	44	1·7	1·12	93,500	13	16	4	0	0	62	5	Nuc. red cells 32,725; numerous megaloblasts.

P, polymorphs; L, lymphocytes; M, monocytes; E, eosinophils; B, basophils; Mc, myelocytes; Mb, myeloblasts.

1·5 million, and colour-index 1·4. Barium meal showed no abnormality. Fractional test-meal (without histamine) showed no free acid. Urine normal.

Subsequent course.—A diagnosis of pernicious anæmia was made and confirmed by the occurrence of a reticulocyte response of 10 per cent. some five days after the first injection of liver. Her blood count improved steadily under treatment with injections of various liver extracts (see Table) and she was discharged in April, 1935, with hæmoglobin 72 per cent. and over 3 million red cells. While in hospital she had a persistent leucopenia, never rising above 3000 per c.mm., with a relative lymphocytosis. On one occasion 2 per cent. of myelocytes were recorded in the differential count.

After her discharge she attended the out-patient department where she was given monthly injections of Pernaemon Forte (5 c.cm.) and iron by mouth. Her hæmoglobin varied between 60 and 76 per cent. In May, 1935, she developed a serpiginous rash on her arm, which was diagnosed by Dr. W. N. Goldsmith as being due to tertiary syphilis. Her blood Wassermann reaction was found to be positive and she was referred to St. Thomas's Hospital for treatment. From August to November, 1935, she received weekly injections of 0·24 gramme of bismuth and one injection only of 0·3 gramme of Novostab. At this time her Wassermann reaction was still positive. From January until April, 1936, she continued with her bismuth injections, and she received two injections of Chlorostab (0·3 gramme) in September. On Oct. 2nd her blood Wassermann reaction was negative. One week later she complained of a lesion over her left clavicle, which later became a gummatous ulcer.

On Dec. 10th, 1936, she was readmitted to University College Hospital complaining of carbuncles on her left shoulder and right temple. On examination these appeared to be typical gummatous ulcers. She was wasted and thin and very pale, her tongue was not markedly smooth, but her spleen was now grossly enlarged and both it and the liver reached almost to the umbilicus. There were enlarged rubbery glands in the groins, axillæ, and neck. A systolic and a doubtful presystolic murmur were audible at the apex. Blood count: hæmoglobin 54 per cent., red cells just over 2 million, colour-index 1·28, mean red cell diameter (halometer) 8·7 m.; considerable number of nucleated red cells and several megaloblasts; white cells 41,300, myelocytes 73 per cent., myeloblasts 16 per cent. Her temperature ranged between 98·4° and 101° F. and despite liver therapy she went rapidly downhill and died one week after admission. A blood count two days before death showed 93,000 white cells, again mostly primitive. A sternal puncture by Dr. J. C. Hawksley showed a cellular marrow with numerous immature white cells and some immature red cells, the findings indicating myeloid leukæmia.

Post-mortem findings.—The examination was performed by Prof. G. R. Cameron, to whom we are indebted for the following particulars. The body was wasted and there were numerous prominent, firm, enlarged lymph glands in both inguinal regions, axillæ, and in the lower part of the neck. On the left shoulder a series of ulcers was present, varying from 1 to 3 cm. in diameter, with punched out edges and some tissue-paper scarring near by. *Heart* (340 g.) showed dilatation of all cavities. Myocardium pale and fatty. Patch of recent endocarditis on the mitral valve. Aorta showed numerous tiny yellow plaques with linear markings. *Lungs* adherent to the chest wall and the right visceral pleura thickened. Lungs œdematous with greyish infiltration with rounded nodules about 1·5 mm. in diameter scattered throughout. Hilar and tracheo-bronchial glands much enlarged. *Liver* (3250 g.) greatly enlarged with uniform infiltration throughout. Hilar and pancreatic glands enlarged, grey and soft. *Spleen* (1500 g.) enlarged, dark red, and firm, with large red infarct of upper pole. No perisplenitis. Hæmolymph glands present at hilum. *Kidneys* of normal size. Cortical pattern blurred with a greyish uniform infiltration. *Ductless glands* normal. *Alimentary canal* showed prominent Peyer's patches and lymphoid follicles in the small intestine. Moderate enlargement of mesenteric glands. *Brain* normal. *Bones:* marrow cavity of left femur occupied by bright-red marrow with a little greyish marrow in between. Corticalis much thickened and very hard.

Histology.—Appearances of *ulcer on skin* strongly suggestive of gummatous ulcer with necrotic surface and deep infiltration with great variety of cells. Considerable fibroblastic reaction. Vessels showed endarteritis obliterans. Plasma cells more numerous than would be expected from a pure leukæmic invasion. *Bone-marrow* typical of myeloid leukæmia. Very cellular, showing cells of origin of both red and white cells. Only a few megakaryocytes seen. *Cervical gland* showed no syphilitic changes, but areas of

myeloid infiltration with atrophy of the germinal centres. *Heart* showed old myocardial scars with muscular atrophy and thickening of coronary vessels. No syphilitic changes seen. *Lungs* showed old healed fibrosis with some myeloid infiltration. *Liver:* great atrophy of liver cells with enormous infiltration with myeloid cells concentrated round the portal canals. Localised circumscribed areas of almost complete atrophy of liver tissue with diffuse myeloid infiltration, in the midst of which were collections of primitive white cells resembling blood islands. *Spleen* showed atrophy of Malpighian bodies with myeloid infiltration and numerous nucleated red cells. *Kidneys* showed myeloid infiltration with myelin changes in tubules and slight arterio-sclerosis.

DISCUSSION

It is well recognised that congenital or tertiary syphilis may lead to a blood picture simulating that of pernicious anæmia, and several such cases have now been recorded (Box and Gill 1936, Miller 1936, Tauber and Goldman 1935). Characteristically, the blood picture closely resembles that of pernicious anæmia but, while there is no improvement with liver therapy, antisyphilitic treatment leads to a rapid cure. This was well shown in the case reported by Box and Gill, and they suggest that the blood changes are due either to liver damage preventing the storage of the anti-anæmic factor or to a syphilitic affection of the bone-marrow. In our patient the original diagnosis of pernicious anæmia, made before the appearance of the lesions of tertiary syphilis, was supported by the reticulocyte response and by the improvement with liver therapy.

In other cases of congenital or tertiary syphilis, in which there is a marked enlargement of the spleen, the blood picture may be such as to simulate leukæmia, especially lymphatic leukæmia (cf. Whitby and Britton 1937a, Elkin and Bowcock 1925, Warthin 1910). These cases have been reviewed by Curschmann (1936), who believes that a true leukæmic reaction may occur as a rare event in late syphilis but that a "leukæmoid reaction," with a blood picture simulating leukæmia, is more common. The splenic and glandular enlargement, the marrow count, and the typical histological changes indicate, however, that in our patient a true myeloid change was present.

Elman and Marshall (1936) reported a case of anæmia of the pernicious type, complicated by diabetes mellitus, which terminated as acute myeloid leukæmia. Their patient, however, had a normal fractional test-meal curve, showed a poor response to liver, and had a colour-index that was never greater than 1·1. The diagnosis of pernicious anæmia therefore appears uncertain and Piney (1936) has suggested that this was a case of myeloid leukæmia in an aleukæmic phase.

The term "leukanæmia" has been used to describe a condition in which the blood picture resembles both pernicious anæmia and leukæmia. This condition is not now believed to be a clinical entity and Whitby and Britton (1937b) state that a leukanæmic blood picture may be found in the later phases of a true myeloid leukæmia. Our case started with the picture of pernicious anæmia and developed a leukæmic count as a terminal phenomenon. This sequence of events is also recognised, for according to Whitby and Britton in true pernicious anæmia the leucoblastic tissue of the bone-marrow may occasionally be irritated by the proliferating megaloblastic tissue, so that the circulating granulocytes and myelocytes may increase; they make no mention of splenic and glandular enlargement.

In the presence of tertiary syphilis the complex blood picture might represent a leuco-erythroblastic response to a syphilitic invasion of the bones. The cortex of the only bone examined in this case was abnormally hard and thickened but unfortunately no section was cut. This diagnosis, the only one to combine the three conditions, appears unlikely in view of the original picture, the response to liver therapy, the final high white cell count, and the widespread glandular enlargement and the myeloid infiltration of almost all the viscera. The blood changes in this case therefore probably occurred in association with, rather than as a result of, the syphilitic infection, although the latter may have played a part in the terminal leukæmic changes.

SUMMARY

In a middle-aged woman with tertiary syphilis blood counts and other investigations originally suggested pernicious anæmia but they later became typical of chronic myeloid leukæmia and the post-mortem findings confirmed this diagnosis.

Our thanks are due to Prof. J. W. McNee for permission to publish this case and to Dr. T. Anwyl Davies for the details of the treatment given at St. Thomas's Hospital.

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PROCAINE INJECTION TREATMENT OF HERPES ZOSTER

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Pain following herpes zoster has often been treated by surgical procedures. Such operations as the alcohol injection of the intervertebral ganglia, the alcohol destruction of segmental nerve-roots, and resection of the posterior nerve-roots within the dura mater are well known. But so far as I know nobody has yet attempted to treat the pain of an acute zoster infection by surgical intervention within the central nervous system itself.

Early in 1936 the department of internal medicine referred to me a man of 52 who had complained of intermittent claudication for six months, but for the previous two days had had almost intolerable pain in the region of his right glutei. I thought that the pain was caused by vascular insufficiency and made para- and pre-vertebral procaine injections of the lumbar segments in order to find out if the vascular trouble was organic or functional. The patient soon noted that his pain disappeared completely; at the same time the circulation of his leg improved, the skin (previously pale and cool) became red and warm, and the faint deviations of the oscillograph became larger. Going over the case again it was clear that the gluteal pain had no connexion with his limping but was merely the beginning of a zoster glutealis. After the injections the pain did not return and the herpes vesicles dried within 48 hours.

Since then I have treated 22 patients with herpes zoster with procaine injections and the results are

No.	Sex.	Age.	Localisation of vesicles.	Duration of symptoms in days.	Nature of therapy and segment infiltrated.	Result.	Healing-time after injection.
1	M.	50	Right gluteal region.	2	Pre- and para-vertebral, L. i–v, right.	Good.	24 hours.
2	M.	52	Th. xii, right back.	3	Paravertebral, Th. xiii, L. i, right.	"	24 "
3	M.	62	Th. viii, right back.	3	Paravertebral, Th. vii, viii, ix.	"	48 "
4	M.	17	Th. xii, right back.	3	Para- and pre-vertebral, Th. xi, xii, L. i, right.	"	48 "
5	F.	34	Right thigh.	5	Prevertebral, L. iv, v (10 c.cm. each), right.	"	48 "
6	M.	30	Left upper arm.	2	Paravertebral, C. v–Th. ii, left.	"	48 "
7	F.	63	Th. v, right axillary line.	10	Paravertebral, Th. v, vi, right.	Improvement after 24 hours.	5 days.
8	M.	48	Right axilla.	2	Paravertebral, Th. i, ii, right.	Good.	48 hours.
9	F.	54	Th. v, vi, right back.	2	Paravertebral, Th. v, vi, right.	"	48 "
10	M.	41	Th. vi, right back.	7	Para- and pre-vertebral, Th. vi (20 c.cm.).	"	48 "
11	F.	47	Right neck and shoulder.	14	Paravertebral, C. vi–Th. i, right.	No improvement.	—
11a	F.	47	Right neck and shoulder.	28	Paravertebral, C. iv–vi, Th. i, ii, right.	Good.	48 hours.
12	F.	74	Th. ix–xii, left axillary back line.	4	Para- and pre-vertebral, Th. viii–L. i (100 c.cm.) left.	"	Pain disappeared after 24 hours; eruptions in 48.
13	F.	62	Right chest and inner surface of the forearm.	4	Paravertebral, Th. iii–vii, right.	"	Pain disappeared after 24 hours; eruptions in 48.
14	M.	40	Right thigh, extensor surface.	2	Para- and pre-vertebral, L. iii–v, right.	"	Pain disappeared immediately; eruption in 48 hours.
15	F.	72	Right supraclavicular fossa.	3	Prevertebral, C. vii, viii, Th. i, right.	"	48 hours.
16	F.	45	Th. i, ii, and vi–viii, right back.	10	Para- and pre-vertebral, Th. i, ii, vi–viii, right.	No improvement.	Pain persisted; after 6 days, new eruptions.
17	M.	64	Th. ii, iii, left chest.	4	Paravertebral, Th. ii, iii.	Good.	48 hours.
18	F.	36	Th. vi, vii, left chest.	—	Paravertebral, Th. vi, vii.	"	24 "
19	F.	64	Below right mamma.	2	Para- and pre-vertebral, Th. vi, viii.	"	Pain relieved immediately; eruption in 48 hours.
20	F.	32	Left frontal and eye.	3	Gasserian ganglion, 2 c.cm.	"	48 hours.
21	F.	77	Left frontal, necrosis.	4	Gasserian ganglion, 1 c.cm.	"	Pain and inflammation disappeared within 24 hours.

shown in the accompanying Table. This shows also the various ages of the patients attacked. The injection was given from 2 to 10 days after the eruption. Except in two patients the pain vanished or was much improved in from 24 to 48 hours after the injections and the vesicles dried in all cases in the same time without any local treatment. In a remarkable case of zoster trigemini which attacked the ramus ophthalmicus there was a huge swelling of both eyelids and the eruption of corneal and conjunctival vesicles. Intense pain, unrelieved by drugs, was felt in the corresponding half of the skull. Forty-eight hours after an injection of 2 c.cm. of a 1 per cent. solution of procaine into the Gasserian ganglion the menacing symptoms disappeared completely.[1]

Two patients failed to respond to treatment. In one, the segmentary injections were insufficient in number as I did not take into consideration Head and Campbell's schema which showed that the radicular innervations of skin segments cover each other in the manner of tiles. On account of the persistent pain and the characteristic herpes relapses I repeated the injections two weeks later over four segments. This time there was perfect healing. In the other patient the treatment had no effect at all. A woman of 40 complained about an eruption and pain, which both the department of dermatology and myself judged to be typical of herpes zoster. During the last six years she had had the eruption repeatedly, similar to the present one and accompanied by the same pain. Even when there was no eruption she suffered from neuralgic pains. In spite of having injected over a sufficiently large area (segmentary anæsthesia was present for some time) neither the herpes vesicles nor the pain disappeared. The explanation of the failure may be the same as is found in the treatment of post-herpetic neuralgias by injection: the chronic inflammation gives rise to an increase of conjunctival tissue and this hinders the free diffusion of the fluid within and along the nerve trunks.

[1] This case I demonstrated on May 18th with my colleague Dr. Mandel at the Royal Society of Dermatology, Budapest.

TECHNIQUE

A 0·5 per cent. procaine solution without adrenaline was used. The injections were performed in the

following manner: each intervertebral ganglion and the prevertebral sympathetic cord was injected with procaine solution, 8 c.cm. being as a rule used for each segment. In the two patients with trigeminal zoster the Gasserian ganglion was infiltrated, but this time only 1 and 2 c.cm. respectively of the same solution was used following Härtel's technique. Perfect asepsis is of the utmost importance, and one should therefore abandon the treatment if the only way of reaching the ganglion was through an area of infected vesicles. One should probably inject directly into the ganglion. About fifteen minutes after injection full segmentary anæsthesia results. Lack of correct technical skill might easily bring the method into disrepute or even prove dangerous.

DISCUSSION

It is interesting to speculate how the inflammatory changes of the ganglia are cured by this very dilute solution; one must assume that besides the specific effect of procaine the artificial hyperæmia, following on a mechanical insult, and the physico-chemical changes caused by the fluid itself play an important part. Although it may be said that a few of the lesions would have healed in the same time without injection, many patients were treated at such an early stage that we can presume they would not have recovered so perfectly and so quickly without treatment. I have used the method without any selection of patients for treatment of zoster of the thorax and the extremities in order to prove the method. I believe that in practice zoster of the thorax, neck, and extremities should be treated in this way only when accompanied by particularly severe pain, for the method is not quite harmless. It is absolutely necessary to infiltrate the Gasserian ganglion in all cases of herpes zoster ophthalmicus, not only for the accompanying pain but also to prevent serious damage to the eye.

SUMMARY

Twenty-two patients suffering from herpes zoster were treated by injections of a 0·5 per cent. procaine solution into the intervertebral and prevertebral ganglia. Except in two patients, the pain ceased and the vesicles dried within 24 to 48 hours. Two patients suffering from trigeminal zoster had their Gasserian ganglia injected with 1 and 2 c.cm. of this dilute procaine solution and in 48 hours the symptoms disappeared.

CLINICAL AND LABORATORY NOTES

A CASE OF ANÆSTHETIC CONVULSIONS

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MUCH interest has recently been shown in the very intriguing problem of so-called ether convulsions. The following case presents some features which may be of value.

A man aged 33 was found to have acute appendicitis and was admitted to a nursing-home at 11.45 P.M. on August 23rd, 1938, with a temperature of 102° F. and a pulse-rate of 90. A specimen of urine could not be obtained for examination.

Atropine gr. 1/100 was given at 11.55 P.M. and induction of anæsthesia begun at 12.15 A.M. by means of Clover's inhaler, with nitrous oxide, oxygen, and ether. Induction was difficult, bile-stained fluid being vomited twice in the early stages; an additional difficulty was caused by the short period that had elapsed since the atropine was given. In the light of later events it is interesting to note that the patient perspired profusely during the induction stage. A large-bore Magill's catheter was passed under direct vision and the anæsthetic continued with gas, oxygen, and ether from a Boyle's apparatus. The patient was covered with thin mackintoshes and sterile towels, and the operation began at 12.30 A.M.

Anæsthesia was difficult throughout, breathing being almost entirely diaphragmatic and jerky, and it was difficult, but not impossible, to maintain adequate relaxation, despite the use of a greater quantity of ether than usual.

A gridiron incision was made, but the appendix could not be removed by this route, and a paramedian incision was used. The appendix was very large and bound down and contained pus and a concretion.

At 1.10 A.M., just after the appendix had been removed, there was a slight hesitation in the breathing, immediately followed by a clonic convulsion of the facial muscles. Almost at once the convulsion spread to the body, being so vigorous as to need a restraining arm. The patient's head was raised and sharply flexed, on which the convulsions ceased at once. The table was put into a 5° anti-Trendelenburg position. The patient's skin was burning hot to the touch, and there was no sweating; the pulse-rate was 130 and the pulse very full. The surgeon complained that the muscles were rigid and the tissues much engorged; there was, however, no cyanosis.

At 1.20 A.M. a second and more severe convulsion occurred. Ice-packs were applied to the head, and the chest and limbs were covered with cloths wrung out in ice-water; these were frequently changed. There was no dramatic cessation of the convulsions as in the first instance, but over about three minutes the convulsions gradually became less and finally ceased.

At 1.40 A.M. the patient began to sweat and the skin was cooler to the touch, and at 1.50 A.M., when the operation was finished, the pulse-rate had fallen to 120, the pulse being no longer full and bounding as it had been. The patient was given an intravenous injection of calcium gluconate 6 c.cm. and returned to bed in good condition. He vomited much bile-stained fluid about ten minutes later, and his pulse-rate gradually fell to 80 at 5 A.M. Anxiety was felt about pulmonary complications, in view of the treatment received, but this proved groundless.

The temperature of the theatre was not known; it appeared to be hot but not unduly so. The sterilisers were in the theatre, without a hood to carry off the steam. An accurate reading of the patient's temperature could not be obtained before sweating started again. The ether used was that of a well-known manufacturer, from a freshly opened 8-oz. bottle supplied a day or two previously.

Most of the factors are present which make this a typical case of ether convulsions. The raising of the head to relieve the engorgement of the brain appeared to stop the convulsion dramatically. Too much faith, however, should not be put in these dramatic cures, for in a case reported by Edwards (1938) convulsions ceased abruptly while a solution of Evipan was being prepared for injection; a moment later, and this would have been hailed as another victory for evipan. Whether or not raising of the head stopped the convulsion, there is no doubt that it recurred. The patient was then treated as for heat-stroke, when not only the convulsion but also the attendant signs of a full rapid pulse, a burning skin, absence of sweating, and gross capillary engorgement disappeared. The injection of calcium gluconate was given because heat-stroke diminishes

the ionised fraction of calcium in the blood, a possible explanation of the dramatic effect of an injection of calcium gluconate reported by Hoseason (1936).

I am indebted to Mr. E. G. Muir for permission to publish this case.

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Hoseason, A. S. (1936) *Ibid*, **13**, 142.

SACROCOCCYGEAL TUMOUR OBSTRUCTING THE BIRTH-CANAL

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THE rarity of sacrococcygeal tumours as a cause of obstruction of the maternal passages hardly needs emphasis. I can find no record of a case within the past five years.

In November, 1935, a primigravida, aged 25, attended the antenatal clinic of the Jessop Hospital for Women, Sheffield. During routine examination an abnormality of the soft parts of the pelvis was found, and she was admitted for further investigation. On Nov. 21st examination under ether anæsthesia revealed a soft mass fixed anteriorly to the sacrum, and a provisional diagnosis of "pre-sacral dermoid cyst" was made. She was then discharged with instructions to return at a date nearer term.

On Dec. 8th at 2.10 P.M. she was readmitted with strong labour pains, the fœtal heart being heard in the left lower quadrant. At 5 P.M. Prof. John Chisholm performed a lower-segment Cæsarean section under ether anæsthesia and delivered a live female child. On intra-abdominal pelvic palpation a soft cystic mass was found between the sacrum and rectum, extending upwards to the level of the third sacral segment.

The patient made an uneventful recovery and was discharged on Dec. 26th with instructions to attend the surgical unit at the Sheffield Royal Hospital. She did not attend before April 19th, 1938, when she was seen by Mr. H. Blacow Yates, who confirmed the diagnosis and admitted her on May 12th. On the 13th Mr. Yates excised the coccyx and last sacral segment under light Percaine spinal anæsthesia, using a posterior approach. The cyst was enucleated and the wound closed with drainage. Recovery was uninterrupted, and the patient was discharged to a recovery annexe on May 24th.

Dr. H. J. Barrie, pathologist to the Sheffield Royal Hospital, reported as follows: "Specimen consisted of a cyst 3 in. in diameter. On section this was seen to be lined by epidermis. Much old and recent intramural hæmorrhage and chronic inflammation were present."

The sacrococcygeal region is a common situation for anomalous cysts and tumours, and they may be classified according to whether their position is anterior or posterior to the sacrum; only those lying anteriorly affect parturition. They may be considered as arising either from normal structures by a neoplastic process or from embryonic remnants. Lipomas, fibromas, chondromas, sarcomas, carcinomas, teratomas, and meningiomas constitute the neoplastic group, and the meningioma may present between the rectum and sacrum after growing through the sacral foramina. Dermoids and chordomas comprise the group arising from embryonic remnants, chordomas arising in a notochordal remnant and occurring in childhood, when they either cause death or are operable. Consequently chordomas rarely encroach on the birth-canal during pregnancy. Dermoids, however, are more apt to do so. The simple dermoid may arise by invagination of the perineal embryonic ectoderm or from the cells of the neurenteric canal. The complex type of dermoid containing, perhaps, mucous glands and columnar epithelium arises, it has been suggested, from the post-anal gut. Often it causes no symptoms and may be accidentally discovered during routine antenatal examination; but obstructed labour may be the first indication of its presence. The tumour is soft and cystic when palpated per rectum, with a freely movable rectal mucosa overlying, and radiography may reveal teeth. Occasionally a pelvic kidney may cause confusion, and its absence must necessarily be proved by pyelography before any operation is undertaken.

If the diagnosis is made during pregnancy, the ideal treatment is Cæsarean section at term with removal of the cyst after lactation. If the progress of the fœtus causes the cyst to protrude through the anus during labour, division of the rectal mucosa with enucleation of the cyst is recommended.

Sacrococcygeal tumours, though in themselves not so uncommon, only rarely complicate pregnancy. Either they present themselves during infancy and yield to surgery or they are too small to interfere with parturition.

I wish to thank Prof. Chisholm and Mr. Blacow Yates for their permission to publish this case.

A CURIOUS CASE OF TETANUS

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THE following case presented a problem which at the time was puzzling, but was eventually solved by pathological investigation.

On April 29th, 1938, a farmer, aged 60, presented himself at the out-patients' department of the Norfolk and Norwich Hospital with a history of having fallen from a cart. He was found to have a fracture of the right clavicle, which his doctor had treated by the three-handkerchief method. Immobilisation was difficult owing to a dorsal kyphosis which caused the rings to slip up round his neck. They were removed and the fracture site was inspected. There was a superficial graze over the hæmatoma, but no other wounds were seen elsewhere at the time. Procaine (10 c.cm. of a 2 per cent. solution) was injected into the hæmatoma and the shoulders were bound back over a padded T-splint. As the patient lived 29 miles away he was referred back to his doctor and told to report at our fracture clinic in three weeks' time.

Eleven days later he first complained to his doctor of discomfort in his back, which was found to be due to a pressure-sore formed by the T-splint strapped over the kyphosis. Next day he had stiffness of the neck and spasm of the jaw, which were rapidly followed by other symptoms of tetanus. He was immediately admitted to the hospital, but in spite of massive doses of intravenous antitetanic serum and administration of Avertin and oxygen he died the next day.

The problem to solve was the origin of the infection: were the tetanus organisms introduced at the time of accident or at some later stage? The four possible sites of entry were (1) the graze over the fractured clavicle; (2) a graze afterwards found on the scalp; (3) the puncture made where the procaine was injected; and (4) the pressure-sore induced by the T-splint. Dr. G. P. C. Claridge removed tissue from

these sites and sent them for culture to the Lister Institute in London. Results were all negative except from the pressure-sore which grew a virulent strain of *Bacillus tetani*. There were two possible sources of infection at this site—namely, the bandage and "hospital grey" wool used in padding the wooden splint, and the patient's clothes, which he seldom changed. Samples of these materials were cultured and a virulent strain of *B. tetani* was readily isolated from the sample of cotton-wool.

This case is of particular interest in that, although the patient was a farmer and therefore liable to infection from his environment, tetanus was proved to have been caused by infected cotton-wool. The lesson seems to be that unsterilised brown wool should not be used for any medical purpose whatever.

My thanks are due to Dr. S. F. Falla, Mr. H. A. Brittain, and Dr. G. P. C. Claridge for permission to publish this case.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTIONS OF MEDICINE AND THERAPEUTICS AND PHARMACOLOGY

AT a combined meeting of these sections held on Oct. 25th, the chair was taken by Dr. H. LETHEBY TIDY, president of the section of medicine. Dr. IVOR J. DAVIES opened a discussion on

Benzedrine: Uses and Abuses

He recalled the case he had described last year of acute aplastic anæmia following the self-administration of Benzedrine (*Brit. med. J.* 1937, **2**, 615), and reviewed the published observations on this subject. In this case the total amount taken had been 190 mg. in the course of nineteen days. Severe cardiac collapse had occurred and the patient's condition had been critical for several hours. He had gradually recovered and ultimately had been restored to good health. Dr. Davies had recommended at the time that the sale of the drug should be strictly controlled by including it in the Schedule of Poisons. Meyerloo had recorded other cases of the use of benzedrine by students preparing for examinations, and had also expressed the opinion that it was inadvisable to allow the drug to be obtained without restriction by the lay public. B. Apfelberg reported from the psychiatric clinic of the Bellevue Hospital, New York, an acute case of benzedrine sulphate poisoning with severe cardiac collapse, coma, and convulsions. The patient had been in an extremely grave state for 36 hours but gradually recovered.

Dr. Davies proceeded to review recent work on benzedrine, dealing more particularly with the general pharmacological effects of the drug. He referred to the experimental inquiry of Gwynn and Yater on the effect of benzedrine sulphate given in therapeutic doses to a large group of students. In the view of these authors the drug was only an emergency measure; they concluded that a daily dose of 20 mg. was probably excessive for the average normal person because of the insomnia and other unpleasant after-effects. Dr. Davies said that benzedrine must now be accepted as a drug useful in the treatment of certain mental disorders. Its administration, however, entailed risks of severe reactions, owing to its action on the circulatory system, but it was possible that these risks could be removed by the use of smaller doses; the aim should be to use the smallest dose which would achieve the desired therapeutic result. It was undoubtedly a valuable drug provided that its harmful side-effects were carefully borne in mind. Dr. Davies noted the fact that benzedrine was to be placed in the first Schedule of the Poisons Act from Jan. 1st, 1939, and expressed the view that it would have been better to place it in the fourth Schedule.

Dr. E. GUTTMANN described experiences with benzedrine at the Maudsley Hospital. Its psychological effects, he said, were separable and distinct from its anti-narcoleptic or sleep-disturbing properties. The average normal response to small or medium doses of benzedrine included a feeling of well-being, an agreeable sense of relaxation, and either a more or less marked cheerfulness or an increased irritability. The constitutionally depressed felt a little happier and the naturally diffident more confident. A sense of energy and increased activity was also experienced, and here again the fatigued and weary benefited more than others. As A. Myerson had said: "The tired feeling around the face and eyes which is perhaps the most disagreeable consequence of insufficient sleep and rest disappears." It was well worth taking to dissipate a hangover. The feeling of increased activity was not only subjective; there was objective evidence of increased motor activity and shortened reaction time. Some felt that their capacity to take decisions was enhanced. Speech became very much more fluent. The flow of words indicated a greater production of association and the speeding-up of the thought processes. It was very difficult to draw the dividing line between improvement and impairment in the field of attention and concentration. Some relished their increased wealth of association, while others felt (and were) jumpy and distracted. Time appeared to pass more quickly.

Certain effects were definitely not produced by benzedrine. There was no improvement in sensory perception, no clouding of consciousness, and no sexual excitation, provided the dose was not large. The effect of a single dose usually wore off within a day, but sometimes the sense of well-being and the increased activity went on to the second day. A number of workers had tried the effect of benzedrine on patients. Sargant and Blackburn found an average improvement of 8 per cent. in the score in intelligence tests, and the mental effects could be shown to be independent of bodily reaction or its subjective experience. Myerson had tried benzedrine on the major psychoses without any benefit. There was now general agreement that it did not improve schizophrenia; a few stuporose patients had been helped, but the same effect or a better one could be obtained from sodium amytal, which was more reliable. Benzedrine was definitely contra-indicated when depression disguised the essential symptoms; it gave its best results in mild cases of depression with marked retardation. Severe depression and depressive stupors were not benefited. Towards the end of a depressive attack, benzedrine might enable a patient to start work or to take the initial steps towards social adjustment earlier than he would otherwise be able to do. The psychological effect was best produced by small doses; in many cases 2·5 mg. given two or three times during a

morning would produce far better results than one large dose. A difficult problem was presented by psychasthenics: the people who were easily fatigued and exhausted and had abnormal reactions of the neurasthenic or hysterical type. Some of them responded very well to benzedrine and might even risk addiction; in any case the fact that the disquieting bodily symptoms preponderated over the feeling of well-being made addiction unlikely. Only one case had been referred to him, and this patient had given the drug up without much trouble and made no effort to obtain a further supply; the fact that she excreted the average amount in the average time showed that her organism had no increased capacity for metabolising the drug. In summary, therefore, benzedrine was a stimulant and might produce in a depressive state a symptomatic improvement which would tide the patient over a critical period or provide a necessary final impetus. Even in these conditions benzedrine was not established as the ideal remedy. Very few drugs were available for the treatment of emotional reactions, though an efficient and safe substance was badly needed. Research might well be directed to the psychological effects of other stimulant drugs, and also into the effect of changes in the vegetative functions on the emotional states, in an attempt to ascertain how the emotions could be influenced by attacking their physical accompaniments.

Dr. J. W. TREVAN said that the form of benzedrine used clinically was a racemic mixture of *d*- and *l*-phenylisopropylamine, the end carbon atom being asymmetrically combined. It produced in animals a rise in blood pressure about equal to that produced by phenylethylamine. Its analeptic action on animals had been studied recently in his laboratory. There was always a difference between animals given the dextro- and the lævo- form: the latter recovered rather more slowly. If one H were replaced in the formula by a hydroxyl group the first of the ephedrine series was obtained. As with ephedrine, repetition of a dose of benzedrine produced a smaller effect. Experiments with the methyl derivatives had also been performed. Benzedrine was a trade name, and a good name for official use was urgently wanted. The dextro- forms of benzedrine and methyl benzedrine differed a little to the advantage of the methyl compound, which acted in rather smaller doses. Further substitution of the amino group with a methyl group made a compound which had practically no action at all. Benzedrine itself was very active in awakening animals from anæsthetic sleep: as active as coramine but less so than cardiazol or picrotoxin. It did not produce clonic convulsions in any dosage. It produced a great increase in voluntary motor activity in mice. Picrotoxin had as good an action in awakening mice from sleep—indeed, it was almost better than cardiazol.

Here, then, was a series of drugs which, though chemically unrelated, all produced the same effect on the time of recovery from anæsthesia. They certainly did not act in the same way. When mice recovered from benzedrine, they went over into a state of intense motor activity, perfectly coördinated but very rapid. Benzedrine did not appear to cause convulsions. Ethyl benzedrine had much the same action, though not so intense. With the ephedrines there appeared to be nothing of the kind: the difference in composition introduced some entirely new factor. In *l*-ephedrine the carbon atom which produced the lævo-rotation was more active than in *d*-ephedrine; in benzedrine the *d*- form was more active than the *l*- form.

Both cardiazol and picrotoxin caused convulsions readily in the normal animal. The picrotoxin group acted at about the level of the red nucleus. Benzedrine acted principally on the cerebrum; the point of action of the ephedrines was not known. The convulsant poisons all easily awakened anæsthetised animals. The effect must be due not to action on some part of the brain which was directly anæsthetised but to a flow of nervous stimuli acting anywhere provided that their action was sufficiently intense.

Dr. D. RICHTER said that in order to determine how big a dose to give and how often to repeat it, the physician must know how long these amines remained active in the body and how rapidly they were eliminated. The action of adrenaline was short, but that of benzedrine might last twenty-four hours. Clinical experiments had shown that an enzyme known as amine oxidase, present in the liver and intestine, was very active in detoxicating ordinary amines and excreting them as an acid product of oxidation. When, however, amines of the benzedrine and ephedrine series were given, the body could not oxidise them and they were excreted unchanged and relatively slowly, the ephedrines faster than the benzedrines.

DISCUSSION

Dr. G. RUDOLF had found from a study of some fifty cases of mild depression that those who benefited most from benzedrine were those who were depressed in the early part of the day. Small doses should be given at the beginning of the treatment: 2·5 mg., working up to 10 mg. three times a day. If he himself took 2·5 mg. he felt better; if 5 mg. he felt quite intoxicated. A medical friend found that frequent use of the inhaler kept him awake all night. After about six months' treatment the effect grew less and the depression tended to return; Dr. Rudolf then stopped giving the drug for a few weeks. After a few days on a small dose, some patients complained that they felt giddy. This was the result of delayed excretion and accumulation, and a reduction in the dose would allow the giddiness to pass off. Patients varied widely in their tolerance, and it was therefore essential to start with very small doses.

Dr. C. H. KEELE inquired whether, in Dr. Guttmann's addiction case, the dose had been larger towards the end of the seven months' period—i.e., whether the tolerance had been increased.

Dr. A. P. CAWADIAS suggested that benzedrine could cause addiction after a certain time. He cited the case of a young man who had been ordered benzedrine by a doctor for Raynaud's disease, and who after a few years had formed the habit of taking 40 mg. a day and could not endure a reduction to 20 mg. Mental stimulation should eventually, by the laws of biological reaction, be transformed into mental depression. It was a good thing that the drug was being placed upon the Poisons List.

Dr. R. STRÖM-OLSEN related that two patients suffering from anxiety states with panic attacks had been made worse by a week on benzedrine and had not been able to sleep. He asked whether Dr. Guttmann had similar experience.

Dr. E. R. CULLINAN referred to a woman patient aged sixty who had suffered from severe coronary disease and had found it necessary to take 10 mg. twice a day for eight months. She had not established any greater tolerance after that time. He spoke also of a child of 3½ years who had been discovered sitting in the nursery chewing the flattened remains of an inhaler. He had been violently sick for hours, presumably as a result of the menthol, and had

talked incessantly for some eighteen hours, even after being given bromides and chloral.

The PRESIDENT declared that benzedrine was obviously a drug that did many different things to many different people, apparently also in different doses. A good deal of experience was clearly necessary for its use. The group of post-influenzal and post-typhoid depressions, in which benzedrine should not be given, was the group in which patients frequently asked their physician for a tonic although what they really required was rest. Another common group was that of the people who said they were always tired, and these would react for a time to any new drug, diet, or procedure, especially if prescribed by an unqualified person. Dr. Guttmann's patient had given up the drug without difficulty, and Dr. Tidy was not convinced that she had become an addict. Benzedrine might have a special use in preventing the onset of sleep.

Dr. DAVIES, in reply, said that the introducers of the drug had admitted to having fixed the dose too high at the beginning. In smaller doses it had a real clinical application. It had established value in Parkinsonism.

Dr. GUTTMANN spoke of narcolepsy as another promising indication for the drug. Patients with mild endogenous depressions responded best. The question arose of how far the physical condition predisposed to addiction, and very little progress had yet been made towards an answer. Coöperation was necessary between the experimenter and the psychiatrist.

Dr. TREVAN pointed out that the early classification of benzedrine as a sympatheticomimetic drug had been disproved. Whereas ephedrine would produce a typical reversal of the blood pressure after ergotoxine, benzedrine would not do this. There was possibly some relationship between the peripheral action of the two drugs. The analeptic effects had nothing to do with the sympathetic or pseudo-sympathetic effects of ephedrine.

ROYAL ACADEMY OF MEDICINE IN IRELAND

SECTION OF SURGERY

AT a meeting of this section held on Oct. 14th, with Mr. A. A. MCCONNELL in the chair, the president, Mr. WILLIAM DOOLIN, delivered an address on

Congenital Clefts of the Lip and Palate

He said that the average incidence of occurrence of a congenital defect of the kind was rather more than 1 in 1000 births. His own experience consisted of 196 cases in six years, 122 of which were clefts of the lip. The cases were grouped according to Veau's classification: simple unilateral (cleft of lip only, without cleft of alveolus or palate), 40 cases; total unilateral (cleft of lip, alveolus, and palate), 68 cases; simple bilateral, 2 cases; total bilateral, 12 cases. Within this main classification there were 14 sub-varieties of which the president showed illustrative slides.

In cases of simple cleft lip the operator's task was to provide an effective closure of the interrupted oral sphincter within its muco-cutaneous envelope. Elaborate efforts at cosmesis were not to be encouraged. In the total unilateral cleft the operator was faced with a triple objective—viz., closure of the nasal floor, closure of the lip defect, and the reconstruction of the nostril. The bilateral cleft lip was best treated by a two-stage operation, each side being closed separately with an interval of three or four months between the two stages; the remaining cleft in the soft palate was best closed in the second half of the second year. There was a definite mortality attached to these operative procedures: in 107 operations for closure of unilateral clefts, 5 deaths had occurred, 2 from post-operative hyperpyrexia, 2 from broncho-pneumonia, and 1 from sepsis; in 15 closures of bilateral clefts there had been 1 death, also from hyperpyrexia. This post-operative hyperpyrexia problem was the evil spirit that haunted all operative procedures on such small subjects; its ætiology was wholly unknown, its treatment purely empirical.

Mr. MCCONNELL said that in these cases a neat and satisfactory result at the end of the operation did not mean that the result would be so satisfactory at the end of a couple of years. One had to guess what the ultimate result might be, and plan for further growth. Referring to hyperpyrexia, he wondered if some cases might not be related to the anæsthetic in some unexplained way. Hyperpyrexia was sometimes associated with cerebral symptoms of a widespread nature.

Mr. HENRY STOKES said that hyperpyrexia was not confined to cleft lip and palate operations. He had met with it after operations for such conditions as pyloric stenosis and intussusception.

Mr. J. C. FLOOD suggested that large doses of morphia might have a beneficial effect in hyperpyrexia.

FUSION OF SCANDINAVIAN MEDICAL PERIODICALS

THE standard of the Scandinavian medical journals is remarkably high, but their quality has hitherto been out of proportion to the number of subscribers. In spite of occasional unbalanced budgets the medical societies responsible for these periodicals have continued to publish them, making good the deficits. Several journals have thus attained a ripe age, *Hygiea*, the organ of the Swedish Medical Society, having this year reached its 100th volume, and *Norsk Magasin for Laegevidenskapen* its 99th. Some eight years ago there arose in the Scandinavian medico-literary firmament a new star, *Nordisk Medicinsk Tidskrift* which, though unconnected with any particular medical society, has already outstripped its contemporaries in the number of its subscribers. The group of doctors responsible for this lively weekly is negotiating with the medical societies with a view to the inclusion of their weekly, fortnightly, or monthly publications in a common journal which would be known as *Nordisk Medisin*. There is every prospect of the plan maturing soon. Even so, this all-Scandinavian weekly journal cannot count on more than some 6000 subscribers—a small figure judged by English standards, and a minute figure in American eyes. The advantages of this proposed fusion are obvious and numerous. In combination the journals should command more attention in the Scandinavian countries and elsewhere than they now succeed in doing singly, they should be able to afford to publish more reviews and abstracts of articles published outside Scandinavia because of increased revenue from advertising, and the duplication of abstracts should be avoided. The editors of the existing publications would continue to coöperate in the unified conglomerate, and an example would be set of intra-Scandinavian coördination which might well prove stimulating in non-medical spheres of life.

REVIEWS AND NOTICES OF BOOKS

Biochemistry for Medical Students

By WILLIAM VEALE THORPE, M.A. Camb., Ph.D. Lond., Reader in Chemical Physiology, University of Birmingham. London: J. and A. Churchill. 1938. Pp. 457. 12*s.* 6*d.*

MOST of the text-books of biochemistry in the English language come from America, where the medical student takes a much fuller course of practical and theoretical biochemistry than in this country. Our students are thus often faced with the choice between books much too detailed and therefore unnecessarily expensive for their purpose, old-established English works which have not been brought right up to date, or small manuals which tend to be sketchy and inadequate. Dr. Thorpe has covered in four hundred-odd pages the whole field of biochemistry in a very clear manner and the student who chooses this text-book of biochemistry would not find it necessary to consult any other work. It is particularly satisfactory to be able to say, after investigation, that the author has not shirked the difficult patches in biochemistry. He supplies an excellent account of the physical chemistry necessary for medical students, and even such modern problems as the use of heavy hydrogen have not been ignored. The description of the stereochemical relationships of the carbohydrates, a subject in which the medical student is rarely well informed, is excellent. The book is really up to date; the latest work on hormones and vitamins is included, and the clinical bearings of biochemistry, for example on dietetics, are adequately outlined, with tables of foods and their vitamin contents. The restricted bibliography is well selected. This is a book that not only students but workers in biochemical laboratories could usefully add to their permanent library.

Pathological Technique

By FRANK BURR MALLORY, A.M., M.D., S.D., Consulting Pathologist to the Boston City Hospital, Boston, Mass. London: W. B. Saunders Co. 1938. Pp. 434. 20*s.*

ONE of the most popular laboratory "receipt books" in the early part of this century was one by Mallory and Wright entitled "Pathological Technique." The last edition appeared nearly 20 years ago and Dr. Mallory has now produced and has dedicated to Dr. Wright what is essentially a new book. It has no pretensions to be an encyclopædia of technical methods but sets out those which are best suited to the miscellaneous and often unsatisfactory material which the hospital pathologist may have to examine. The various histological techniques are well described; a pleasant and instructive feature is the note of the date when each recipe was devised, for staining still resembles cookery in being an art rather than a science. The bibliography is unusually complete. On the whole the section on neurological technique is excellent, though we regret the omission of Hortega's pyridinisation variants, which are more reliable than any other method for post-mortem material. There is no mention of gelatin embedding, apart from Wright's rapid method, of Sudan black for fats, or of Masson's technique for argentaffin cells in section—the block technique which is here given is somewhat capricious.

The second half of the book is devoted to post-mortem and museum technique and photography. The section on post-mortem methods is admirable. Our only observations here are that in a later edition attention might be drawn to some of the modifications necessary in a medico-legal case, and that better methods of examining the accessory air sinuses and the femoral bone-marrow are now available than those described.

Since many who scorn to deface any other books permit themselves marginal notes in those on technical methods, a wider space for such notes would be a convenience. Not only pathologists but their technical assistants will find much help from this work.

Krankheiten und Hygiene der Warmen Länder

Fourth edition. By Prof. Dr. P. MÜHLENS, Prof. Dr. E. NAUCK, Prof. Dr. H. VOGEL, and Flottenarzt Prof. Dr. H. RUGE, of the Tropeninstitut, Hamburg. Leipzig: Georg Thieme. 1938. Pp. 562. RM.43.

THIS production well maintains the reputation of the Hamburg school of tropical medicine. The first section deals with the general and personal aspects of hygiene in the tropics. A short discussion on the morphology and biology of the blood is followed by a useful account of various technical methods for its examination in relation to tropical diseases. This forms a natural introduction to the opening chapters of the main section which deals systematically with the protozoal and virus infections. Then come chapters on deficiency diseases, bacterial infections, conditions due to worm and arthropod infestation, the skin diseases and the venereal diseases of the tropics. Poisoning by venoms of animal or plant origin is discussed and a section is devoted to the unclassified diseases of the tropics; tropical megalocytic anæmia might have been transferred from this group to that of the deficiency diseases. The final sections deal with surgery and the special manifestations of general disease in the tropics.

The material is well balanced and up to date, and any minor omissions are no doubt due to the essentially practical standpoint from which the subject is approached. The emphasis given to German drugs is a little irritating to the impartial reader; for example, it is not a matter of universal agreement that Yatren is "the best and most efficient remedy for amœbic dysentery," and it has not everywhere, as in Hamburg, replaced emetine.

The book is well printed on good paper and is singularly free from typographical errors, though we notice a reference to the use of Neosalvarsan in Hamburg "37 years ago." The diagrams and photographs are excellent and the coloured plates are vivid and accurate.

A Short Practice of Surgery

Fourth edition. By HAMILTON BAILEY, F.R.C.S., Surgeon to the Royal Northern Hospital; and R. J. MCNEILL LOVE, M.S. Lond., F.R.C.S., Surgeon to the Royal Northern and Metropolitan Hospitals. London: H. K. Lewis and Co. 1938. Pp. 996. 28*s.*

IN its fourth edition this book, which is very popular among students, retains its essential features unchanged, though it has been largely rewritten and brought up to date and many illustrations have been added. The illustrations are extremely well chosen and reproduced but their very excellence is in some ways a danger. It is intended that the pictures should take the place of many words, but it is questionable whether they can do more than

give the student an idea of what a certain condition *looks* like. They cannot tell him, as he could be taught in words, about the nature of the disease in question and its natural history. The student may indeed by tempted to think that he knows all about the clinical appearances of any disease when he has seen its picture, and he may therefore fail to recognise it when it appears in a different guise; this possibility is exemplified in the photograph of a carcinoma of the thyroid gland in this volume.

The book contains a great many facts. But when these are analysed they will be found to relate mainly to the "spotting" of a large number of diseases, and to their stereotyped treatment. The student is not inspired to inquire into their pathology or to try to find out why certain forms of treatment are more successful than others. What is the essential difference between a carbuncle and a boil? Why does gastrojejunostomy heal some peptic ulcers and have no effect on others? Why should ligature of the saphenous vein benefit a varicose ulcer? Hosts of such questions will suggest themselves to the intelligent student, and few of them can be answered from this book. In short, in spite of having the appearance of covering the subject thoroughly, the teaching is in fact not sufficiently detailed, and students should realise that though it is remarkably free from error the book does not by itself provide adequate preparation for a qualifying examination.

A welcome innovation is the addition of brief footnotes giving the dates of the birth and death of many surgeons who have earned the distinction of having their names attached to diseases, operations, or instruments. These notes also show where the great men worked, and the authors deserve a special word of praise for this attempt to interest students in the history of medicine.

Glaister's Medical Jurisprudence and Toxicology

Sixth edition. By JOHN GLAISTER, M.D., D.Sc., Barrister-at-Law, Regius Professor of Forensic Medicine, University of Glasgow. Edinburgh: E. and S. Livingstone. 1938. Pp. 747. 25*s*.

Glaister's book has always made absorbing reading, not so much for a broad canvas as for flashes of genius in presentation and for a painstaking attention to detail. The exhaustive section on blood stains has by itself induced many a student and pathologist to place the book on his shelves, and many other sections are as carefully constructed. Unfortunately there is too little to distinguish this edition from its predecessor. The author confesses that the responsibility for editing it fell upon him at comparatively short notice, and indeed the entire book—text, illustrations, and bibliography—reflects the hurry of its preparation. Fifty consecutive references to the literature taken at random contain but four which are less than 25 years old. Most refer to publications dated between 1880 and 1910, the subject matter of which has been worn by the tread and retread of 40 years' strides in medicine. Many of the illustrations, too, by reason of faults in distance or angle of approach, exposure, or definition, are far less effective for teaching purposes than they might be. This is surely not for lack of material, for suitable photographs lie scattered in profusion among every forensic pathologist's records. There are some gaps in the text such as the omission of aspirin poisoning, and deficiencies such as the inclusion of a mere list of barbiturate drugs, without discussion, when as much as a page is devoted to the problem of zeliopaste (thallium). Such inconsistencies are, in a way, typical of the approach of this book to its subject; it is not conceived in the grand manner of a master; the language is not broad and sweeping but guarded, much conditioned, and sometimes a little pedantic. This applies also to the revised material which includes sections on identification in relation to the Ruxton case, on the Pharmacy and Poisons Act, and on certain modified techniques for laboratory procedure. To many this manner constitutes the charm of "Glaister" and to these we commend the book anew. It is, as it always has been, a mine of detailed information, solid, sound, and unimpeachable.

Keats as Doctor and Patient

By Sir WILLIAM HALE-WHITE, K.B.E., Consulting Physician to Guy's Hospital. London: Humphrey Milford, Oxford University Press. 1938. Pp. 96. 5*s*.

KEATS studied medicine not from choice but in accordance with arrangements made for him by his guardian. He seems to have raised no objection to these, but to have been a conscientious student, though his mind and heart were not in his work. Having spent four years as an apprentice, he joined Guy's Hospital in October, 1815. It is not from records left by him but from those made by a student two years his senior that Sir William Hale-White has been able to reconstruct a vivid picture of the responsible duties of a surgical dresser in the early part of last century. During the weeks of duty, taken in rotation, he lived in hospital and was responsible for dealing with urgent cases and for selecting those to be admitted. Keats's chief was an inefficient surgeon called Lucas, but he seems to have come under the notice of Astley Cooper whose lectures he attended with diligence. His notebooks, which have been preserved, contain neat and methodical memoranda on anatomy and disorderly scribbles on physiology which are much more interesting. Both sets of notes record only important fundamental points and support the view that Keats was a student of judgment and ability. One of the dicta he thought worth taking down was: "In disease medical men guess; if they cannot ascertain a disease they call it nervous."

After ten months' study at the hospital Keats qualified; when he had been a doctor for less than a year he decided not to practise and declared his intention to rely on his ability as a poet to gain him a living. Later he said that he was glad to have kept his medical books "which I shall again look over to keep alive the little I know thitherwards. . . . An extensive knowledge is needful to thinking people—it takes away the heat and fever; and helps by undermining speculation to ease the Burden of the Mystery."

The first and smaller section of this well-documented little book is concerned with Keats as a doctor. Too soon, alas, he became a patient—complaining first of a lack of robustness, then of "a little indisposition of my own," of a bad sore-throat "that has haunted me at intervals nearly a twelvemonth" (which Sir William sees no reason to attribute to tuberculosis of the larynx), and then of the hæmorrhage which was the first manifestation of the disease which was to kill him only five years after qualification. Sir William explodes many false theories and assumptions about Keats's mental and physical state and concludes that "all we know is that Keats was attacked by reviewers and that he died of consumption." Some useful lessons on the changes in medical practice find their way as if by accident into this graphic story and doctors and laymen alike will profit by the critical yet tolerant survey of the mistakes made in the management of tuberculous patients 100 years ago.

THE LANCET

LONDON: SATURDAY, NOVEMBER 5, 1938

STOCKTAKING

As an essay on the state of the public health Sir ARTHUR MACNALTY's report[1] to Mr. WALTER ELLIOT leaves something to be desired. It contains no word about the mental health of the community; it tells us nothing of the changing conditions of the boys and girls of school age; it is a series of monographs on various aspects of the public health rather than an epitome of the whole. But it has the virtues of its defects and the chief medical officer may well have been right in forgoing the elusive conspectus suggested by his title. He presents instead a straightforward account of the seven sections into which the medical department of the Ministry is subdivided, and he presents it in a form which can be seized by every thoughtful member of the community. For year by year as these sections, under their own competent heads, have gained experience they have been able to examine, to prove, and to select material for public instruction, so that the report as it now appears, with the imprimatur of the chief medical officer, forms a very remarkable body of informed comment. The main omissions are to be explained simply by the curious fact—which might perhaps have been rendered clear to the unlearned—that there are no sections of the Ministry of Health charged with mental welfare or child health. One of these omissions is made good, more or less, by another report reviewed on p. 1074 of this issue; the other in a familiar report soon to be expected from the medical department of the Board of Education.

The departmental surveys cover the calendar year 1937, and in a concluding section the chief medical officer notes some of their salient points. On the whole the vital statistics for the year bear witness to an improvement in the public health which has been continuous in recent years. There was a slight but appreciable rise in the birth-rate, a rather more appreciable rise in the death-rate, to be explained partly by the ever-increasing elderliness of the population, partly by the prevalence during the early part of the year of influenza with its aftermath of pneumonia and catarrhs. The first quarter of the present year—which is outside the survey—had a death-rate lower by 16 per cent., and is a fairer indication of the general trend. The infant mortality-rate was substantially the same as for the two preceding years. Its decline during the last thirty years has been spectacular and it is said that the irreducible minimum is being approached. Yet no one who takes a long view can regard with equanimity the table on p. 204 setting out with admirable clarity the deaths at various age-periods. The highest proportion of total deaths per quinquennium is quite properly shifting into the seventies and looks as though it may at some time reach the eighties, but there is still an enormously greater risk in the first year of life than in any other, and far less improvement here than in the early years of childhood, which are from year to year becoming steadily safer. We could wish that this table of figures had been put into graphic form. The rate of maternal mortality has fallen to 3·13 per 1000 total births, the lowest ever recorded in England and Wales, implying the survival of 814 more mothers in 1937 than three years ago. This is encouraging, for if some are content that the death-rate following confinement should only compare favourably with that following a surgical operation, there is a general consensus that renewed efforts cannot fail to secure further reduction in maternal mortality. The measures already taken on the reports of 1937 appear, it is noted, to be showing results. In the region of epidemiology much of interest is happening. Some common fevers are disappearing as a menace to life. Others such as diphtheria seem to have reached the limit of what can be expected along the old lines of notification, removal, and disinfection, while there is as yet little enthusiasm for the preventive treatment which has led where it has been tried almost to an eradication of the disease. Two sometime common fevers have shown signs of recrudescence during the year. Concentration of typhoid fever had been so rare in recent years that the Croydon outbreak naturally aroused public attention and alarm. On the other hand, the astonishing increase in the number of reported cases of dysentery has passed with little notice, largely no doubt because there was no associated increase in the number of deaths attributed to the disease. While some of the increase may have been due to the growing use of bacteriological aids to diagnosis and to a wider recognition that the Sonne type of dysentery is notifiable, the quadrupled incidence was unexpected and eludes any satisfactory explanation. A bright spot in the epidemiological firmament was the discovery during the year of a synthetic substance capable of killing bacteria within the body without damage to its living cells. While setting out the striking results obtained from drugs of the sulphonamide group in the treatment of bacterial disease, particularly gonorrhœa and puerperal sepsis, the report is mindful of the dangers of uncontrolled use and an appendix contains a cautionary tale.

The report is prefaced with a review of specialist services in their relation to the public health.

[1] On the State of the Public Health. Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1937. H.M. Stationery Office. Pp. 235. 3*s*. 6*d*. The senior medical officers in charge of the seven sections of the medical department are: (1) Medical Intelligence, International Health, &c.: Dr. T. CARNWATH; (2) Maternity and Child Welfare: Dr. ISABELLA D. CAMERON; (3) Tuberculosis, Venereal Disease, Epidemic Diseases, &c.: Dr. J. E. CHAPMAN; (4) Nutrition, Food and Drugs Administration: Dr. J. M. HAMILL; (5) General Practitioner Services and Insurance: Dr. R. PATERSON; (6) Surveys, Hospitals, Public Assistance Medical Services, &c.: Dr. H. A. MACEWEN; (7) Welsh Board of Health: Dr. T. W. WADE; while Dr. J. H. HEBB is in charge of the special section recently set up for Emergency Hospital and Medical Services.

Almost from the beginning of State medical insurance it was intended that local authorities should provide facilities for the diagnosis and treatment of disease. The requisite financial aid would have been available in 1914 had not the war intervened. But in an impressive historical summary Sir ARTHUR shows how much has been done piecemeal and now for the most part the practitioner can obtain free of charge the tests which he requires in diphtheria, typhoid, tuberculosis, venereal disease, cerebro-spinal fever, tetanus —and the list is incomplete. This pathological provision, made sometimes by arrangement with county pathologists, sometimes with a university or voluntary hospital laboratory, is in addition to facilities for specialist advice and treatment available in London for most persons who require it. In the country, with certain notable exceptions —e.g., Bristol—no such comprehensive service is yet available. Sir ARTHUR admits the difficulty of estimating the specialist needs of the community but approves the rough estimate of 5 per cent. of patients seen by general practitioners, whereas others might put the figure rather lower. Although we are facing again a time of financial stringency which offers little prospect of new provision for social services, he sees great hope from developments which might be reasonably undertaken by local authorities, with the aid of voluntary hospitals, to provide more specialist advice and treatment in the areas for which they are responsible. Given the collaboration and goodwill much of this could be effected with little expenditure of public money.

AIR-BORNE INFECTION IN OPERATING THEATRES

THE tissues of the central nervous system are peculiarly defenceless against infection, and in a paper which appears on another page Dr. S. T. COWAN describes some unusual organisms isolated from the tissues of patients subjected to cerebral operations. Bacteria which in other systems of the body behave as harmless saprophytes are evidently able to establish themselves in the brain and to set up an infection which, even though it may not end fatally, at least prolongs and complicates recovery from an operation which would otherwise have been successful. There is no reason to doubt that neuro-surgeons are aware of the peculiar vulnerability to infection of central nervous tissue exposed at operation, but there are few, if any, published records drawing attention to this or to the types of organisms which can establish themselves in these tissues. In this connexion Dr. COWAN raises the important question of air-borne infection in the operating theatre. It is not so very long ago that this risk was regarded as negligible, but the danger of contamination of the exposed tissue or operation wound by pathogenic micro-organisms from the nose and throat of the surgeon or his assistants is now well recognised. This is, or should be, guarded against by excluding from the theatre anyone suffering from infections of the upper respiratory tract—particularly infections due to streptococci and staphylococci—and by insistence on the use of efficient masks by the surgical team and theatre personnel. Another precaution designed to prevent bacteria from being brought into the theatre from outside is the provision of special clothes and boots for the surgeon and his assistants. But, as Dr. COWAN points out, there is a more remote source of air-borne infection. The staff engaged in preparing the theatre are not masked and they may well contaminate the air with infective droplets and bacteria brought in on their clothing. The larger droplets no doubt settle rapidly and by the time the surgeon begins to operate are probably out of the way. But the finer ones tend to stay in suspension and are likely to be a source of infection, not only in neuro-surgical operations, which may last as long as five hours, but also, according to HART,[1] in other prolonged operations such as those now performed in the thorax. How best to cope with infection from droplets suspended in the air is difficult to decide. We noted early this year[2] HART'S view that the most effective procedure is the sterilisation of the air above the operating table by means of ultra-violet light. In his theatre at Duke University a special lamp emitting ultra-violet rays plays on the operating field, the staff being protected against these rays by special equipment. HART is convinced that the ultra-violet light of the strength applied has no deleterious action on the patient's tissues and cites the results of animal experiments in support of his contention that irradiation does not delay the healing of wounds. He has also carried out experiments to show that light as used in his operating theatre has a remarkable bactericidal action—for instance, agar plates sown with staphylococci and exposed to the light of the lamp at a distance of four to five feet remained sterile. The method is certainly simple and those who have seen it in use and talked with men accustomed to work with it are satisfied of its practical value. So far as we know no confirmation of HART'S work has yet been published, but it seems well worth following up.

TWO PROBLEMS IN VIRUS IMMUNITY

THE very solid immunity that follows infection with many viruses has excited much curiosity and prompted much investigation, especially during the last decade. Two questions have proved particularly intriguing: how far is persisting immunity determined by persisting latent infection, and how far is that immunity cellular and how far humoral in nature? These questions are raised again in papers lately appearing on both sides of the Atlantic; but unfortunately neither has yet been finally answered.

Fresh examples have been brought forward in which viruses have been shown to persist for long periods in animals that are recovering from recent infection or are harbouring an inapparent infection contracted either naturally or by immunisation

[1] Hart, D., *Arch. Surg., Chicago*, 1937, **34**, 874.
[2] See *Lancet*, 1938, **1**, 298.

with living virus. Thus TRAUB [1 2] found that in certain stocks many mice harboured the virus of lymphocytic choriomeningitis, which could be recovered from their blood, urine, or nasal secretions, for at least 200 days. As a rule, the younger the mice at the time of their infection the longer the carrier state. Carrier mice were highly immune to the virus though it was possible to produce immunity in the absence of the carrier state. WEBSTER [3] immunised mice against the virus of the St. Louis type of encephalitis by means of a single dose of living virus injected subcutaneously or intraperitoneally. Immunity began to appear within 4 days, was maximal in a week, and had disappeared after 20 weeks. Virus persisted in the spleen of the immunised mice up to 34 days after injection—that is, during the period when immunity was at its height. In this country BEDSON [4] has found that in mice actively immunised with formalin vaccines against psittacosis and then injected with living virus, no open infection results but the virus may be present in the spleen for as long as 7 months. A similar happening may follow injection of apparently neutral serum-virus mixtures. Again, the carrier state is accompanied by solid immunity. These new examples of the association of solid antiviral immunity with persistence of virus in the tissues lend support to the view, often put forward, that solid immunity to viruses depends essentially on such a carrier condition. It is, however, unwise to argue too confidently from one virus disease to another. BEDSON'S results in immunising mice with formolised psittacosis virus show that some immunity to a virus may exist, even for months, in the absence of persisting infection.

BEDSON puts forward a tentative explanation of the way in which a latent psittacosis infection may maintain immunity, and lays stress on the probable rôle of antibodies. These, he suggests, prevent all but occasional cells from becoming parasitised by the virus and thus keep it within safe bounds while permitting "intermittent showers of virus" to provide antigenic stimuli. He is clearly opposed to a concept of tissue immunity unrelated to antibodies such as has been proposed by LEVADITI.[5] A number of workers in America, on the other hand, appear to favour such a concept. TRAUB [1] reports that in mice recovered from, and immune to, choriomeningitis, antibodies are commonly not demonstrable, though in immune guinea-pigs they are definitely present. SHOPE [6] records that pigs recovered from swine influenza are refractory to human influenza virus, though their sera contain no neutralising antibodies active against it. It might be argued that in both these instances antibodies were present in undetectable amounts. The latest papers from WEBSTER [3] and HODES and WEBSTER,[7] however, offer a more serious challenge to the upholders of the humoral school of thought. As already mentioned, they immunised mice against St. Louis encephalitis virus; such immunity appeared very rapidly and was apparently unaccompanied by the presence of any antibodies in their sera. But at the very time when the immunity was waning, antibodies began to appear in the serum and these remained for many weeks, being demonstrable after the mice had regained their susceptibility to infection. Elucidation of this paradoxical finding would go far to solve one of the knotty problems of virus immunity.

ANNOTATIONS

HYPERTENSION AND THE KIDNEY

MOST of the confusion over nephritis can be traced to the probability that Bright's disease includes a number of separate entities and to difficulty in distinguishing cause from effect. The association between chronic renal disease and hypertension or cardiovascular hypertrophy is now obvious enough (though it needed a Bright to recognise the fact), but it is still uncertain which of the two, if either, is primary. Vasoconstriction, which is at the root of hypertension, can certainly cause damage to the kidney, or for that matter to any tissue, either directly or by inducing structural changes in the renal vessels. Conversely there are good clinical grounds for suspecting that renal damage may lead to generalised vasoconstriction and so to hypertension.

The immediate problem in nephritis is to disentangle the two morbid mechanisms and to assess their relative importance, and it is for this reason that so much attention is at present being paid to the form of experimental hypertension which follows partial occlusion of the renal arteries in animals. It is now clear that severe hypertension can be provoked by constriction of one or both renal arteries and that it can be made temporary or permanent and altered in degree by varying the amount of vasoconstriction. It is also fairly certain that this hypertension is caused by secretion of some pressor body by the ischæmic kidney. What this body is, and whether or not the hypertension represents an attempt to restore a normal blood-supply to the clamped kidney, remain to be discovered; but the knowledge that the kidney can initiate and sustain hypertension should sooner or later throw light on the nature of Bright's disease. Academic issues apart, the discovery has already borne fruit. Recent months have witnessed an increasing number of case reports pointing to an association between unilateral renal damage and hypertension. The nature of the damage varies from case to case, some showing fortuitous obstruction of the main renal artery, others destructive or inflammatory changes due to ascending infection or ureteric obstruction. The abnormality common to all cases, however, is a shrunken, badly damaged kidney, and whenever this has been removed the hypertension has subsided. This syndrome, which is undoubtedly commoner than is generally recognised, finds a close counterpart in experiments in which one renal artery has been clamped sufficiently to cause hypertension. In

[1] Traub, E., *J. exp. Med.* 1936, **63**, 847.
[2] Traub, *Ibid*, 1938, **68**, 229.
[3] Webster, L. T., *Ibid*, p. 111.
[4] Bedson, S. P., *Brit. J. exp. Path.* October, 1938, p. 353.
[5] Levaditi, C., L'herpes et le zona, Paris, 1926.
[6] Shope, R. E., *J. exp. Med.* 1937, **66**, 151.
[7] Hodes, H. L., and Webster, L. T., *Ibid*, 1938, **68**, 263.

animals thus treated removal of the clamped kidney, which is often atrophied, promptly abolishes the hypertension. These facts should encourage the clinician to look carefully for evidence of unilateral renal disease in every case of high blood pressure.

Meanwhile the literature of experimental hypertension is swelling alarmingly and newcomers in the field may be referred to Prof. H. Goldblatt's recent Harvey lecture.[1] Goldblatt has been mainly responsible for the development of this new line of research and his lecture, based on his own work and on some 200 relevant papers, forms a very useful summary.

THE VITAMIN-D REQUIREMENT OF MAN

THE logical sequel to the identification of a vitamin and its subsequent standardisation in international units is the establishment of the amount required to maintain good health in persons of different ages. The practical difficulties of such quantitative estimations are, however, formidable. The human requirement of vitamin D is the subject of a contribution by P. C. Jeans and Genevieve Stearns to a valuable series of articles which survey progress in our knowledge of the various vitamins.[2] Jeans and Stearns, whose standing among research workers in pædiatrics is high, discuss the requirements of vitamin D at all ages, but it is only in young children that these have been calculated with any precision. Two considerations complicate their task—one of them common to estimations of the requirement of any vitamin or nutritional factor. The amount of a factor that just suffices to protect the subject from pathological symptoms (in this case rickets) must be less than that which permits of the fullest possible growth and development. But we do not even know what to set as a standard of growth and development; we only know what is now regarded as "normal" in the sense of "average," and there is good reason to suspect that at least among those with low incomes the average standard of growth and development is far from being the best attainable.

The second complication is peculiar to vitamin D and arises from the fact that the quantity of this vitamin required by the body is not absolute but varies more or less inversely with the calcium supply. These two are related to one another like children on the ends of a see-saw. As the calcium supply goes up, the vitamin-D requirement comes down, and vice versa, though this mechanism of adjustment cannot, of course, compensate for an amount of calcium which lies below a certain minimum. Nor is even this the last instalment of the serial detective problem set for solution, for the vitamin-D supply includes not only that ingested but also that synthesised in the body wherever sunshine or other sources of ultraviolet rays fall on bare parts of it. The results of any attempt to assess and express in international units the human supply or requirement of vitamin D can thus hardly be stated in specific terms. In summing-up, Jeans and Stearns think that probably 300 to 400 international units of vitamin D daily is a sufficient dose for infants and children receiving at least 750 c.cm. (about 1¼ pints) of milk, and also for adolescents. "For adults" they say, "the optimal amount of vitamin D, if such a need exists, remains to be determined." They refer briefly to the question of vitamin-D requirement in old age and suggest that senile osteoporosis may be due partly to the habitual consumption by most American adults of diets low in calcium, and partly to the fact that elderly people are less exposed to sunlight than younger ones. The possibility of vitamin-D starvation of the adult and particularly of the elderly adult deserves much more attention than it has hitherto received. Oldish persons who consume little milk and no fish-liver oils, and seldom venture out of doors except hatted and gloved, get only an extremely small supply of vitamin D. The common incidence in old people of fractures, particularly of the femur, and the difficulty with which such fractures heal, may well be in some way associated with deficiency of vitamin D or of calcium, and in many modern clinics special care is taken to ensure that the supply is ample during convalescence. The decision of the Seamen's Hospital Society to supply food to out-patients in their fracture clinic is, as we noted last week, based on the view that malnutrition in general delays healing and though the patients at this particular clinic are active adults it may prove possible to draw from their experience lessons applicable to the aged.

AGRANULOCYTOSIS AND SULPHANILAMIDE

IN an interesting review of the relation of drug therapy to neutropenic states, Kracke[1] concludes that amidopyrine is undoubtedly the cause of the majority of cases of agranulocytosis. At least 15 are on record, however, in which Prontosil or sulphanilamide has been responsible. In our present issue Dr. F. D. Johnston records 2 cases in which severe agranulocytosis followed treatment with both Allonal (which contains amidopyrine) and sulphanilamide. Since the dosage of sulphanilamide was large and that of allonal small, Johnston considers that the former was responsible for the sudden fall in white cells—a conclusion which is not perhaps justified, since agranulocytosis has been known to follow even minute doses of amidopyrine. Certainly it seems unnecessary to give a patient two drugs which may have a similar toxic action, and Johnston states that in future allonal will not be used at Queen Charlotte's Maternity Hospital isolation block.

Analysing published cases of agranulocytosis, Johnston finds that only one of the patients received a dose of sulphanilamide that can be deemed excessive, and this patient recovered. The lowest total dose given to an adult (30 g.) was about that used at Queen Charlotte's Hospital in moderately severe puerperal infections. He regards the length of time over which the drug is taken as of more importance, the period in all but one instance—that of an emaciated child—being more than a fortnight. When pyrexia recurs or increases during sulphanilamide or prontosil therapy, especially in those infections which are known to respond to such treatment, he believes that granulocytopenia should be suspected until the question is settled by examination of the leucocytes. If done frequently leucocyte counts would no doubt obviate the danger of severe granulocytopenia, but Johnston thinks this arduous task unnecessary. In his opinion only those cases with a *Streptococcus hæmolyticus* Group A infection which do not show a typical response require frequent blood examination. Against this it may be argued that sulphanilamide is now used for all sorts of infections, many of which show no typical course, and in these, especially if large doses are given over long periods, complete blood counts are essential. The sulphanilamide group of drugs are capable of causing severe anæmia as well as agranulocytosis,

[1] Goldblatt, H., Experimental Hypertension induced by Renal Ischæmia. Published among the Harvey Lectures for 1937–38. (London: Baillière, Tindall and Cox. Pp. 275. 18s.)
[2] *J. Amer. med. Ass.* 1938, **111**, 703.

[1] Kracke, R. R., *J. Amer. med. Ass.* Oct. 1st, 1938, p. 1255.

and severe anæmia is not necessarily associated with any rise in temperature which will serve as a danger signal. Kracke foresees an increase in agranulocytosis in the next few years as the drug is used more often and under ill-controlled conditions.

In discussing treatment Johnston advises pentose nucleotide, liver extract, and blood transfusion. It is noteworthy that in his own cases a definite increase in granular cells was observed before the use of any therapy other than pentose nucleotide.

PORTABLE CLIMATE

MODERN air-conditioning plant has made it possible to adjust the temperature, humidity, and movement of indoor atmospheres to any desired level, and the introduction of portable apparatus, such as that described in our columns a few months ago,[1] has extended its scope from the large factory and restaurant to the private house. For several years G. P. Crowden and T. C. Angus of the London School of Hygiene and Tropical Medicine have been investigating the possibilities of portable air-conditioned cubicles for use in excessively hot or cold climates, and Dr. Crowden carried out some preliminary experiments in Egypt four years ago.[2] In a paper read before the Institution of Heating and Ventilating Engineers on Oct. 11th, Crowden and Angus emphasised that for a cubicle to be both efficient and economical its walls, floor, and ceiling must be capable of conforming rapidly to the inside temperature and must provide as perfect insulation as possible from conditions outside. These objects can best be attained by lining the cubicle with insulating material of low thermal capacity and spacing the lining away from the main structure. Insulation can be further increased by dividing the air-space thus formed by a thin sheet of asbestos paper covered on each side with aluminium foil, which will reflect a large proportion of the heat falling on its outer surface and radiate very little from its inner surface. In his experiments in Egypt, Crowden found that the surface temperature of the internal walls of a hut constructed in this way did not rise above 103·8° F., compared with 115° F. in a hut lined with three-ply wood only. To ensure the comfort of the occupant, local factors such as clothing must be taken into consideration, and temperature and humidity must be very carefully controlled. Over-enthusiastic cooling has led to failure in air-conditioning in the past, and Crowden and Angus have found that, where the outside temperature is about 100° F., a drop of some 8° F. inside is sufficient for comfort, as long as the relative humidity is not allowed to rise above 50 per cent.

In association with C. H. Adams, Crowden and Angus have designed a cubicle measuring about 10 ft. by 7 ft. and 6 ft. 2 in. high which will hold a small bed, a chair, and a table, and in which a European—for example, the manager of a mine in a tropical climate—could obtain a restful night and write his reports. The cubicle is constructed of very thin panels of brown Bakelite and paper compressed into a strong board, held together by a framework of aluminium, and can be erected without tools in an hour. Its air-conditioning plant uses about a unit of electricity per hour, and where a main is not available could be driven by a large oil burner of the Primus type or a small oil engine. Most of the supply air is drawn from inside the cubicle and re-circulated, the smallest allowable quantity of outside air being admitted after passing through the cooling coils. The vitiated air displaced finds its way through openings at the bottom of the hollow walls up into the hollow roof, and thence through a vent to the exterior. All air openings and inlets are protected against insects by wire gauze, so that mosquito nets are unnecessary. Humidity is controlled automatically by a humidostat, and the cool incoming air can be directed on to the occupants if they wish. The cubicle has been found satisfactory in the air-conditioned room at the London School of Hygiene and Tropical Medicine, where temperatures and humidities as high as are met with in any parts of the world can be maintained for long periods, and the next step will be to test it in a tropical country, where acclimatised residents wearing their customary clothing can be used as subjects.

[1] *Lancet*, 1938, **1**, 1032.
[2] *Ibid*, 1934, **1**, 37.

A NEW CIRCULATORY STIMULANT

ADRENALINE has been widely used as a circulatory stimulant since its isolation over thirty years ago. Its action on the heart and blood-vessels is intense, but is unfortunately transient, even when the drug is given intramuscularly. In the intervening years an extensive series of related amines has been prepared and some of these have found a place in clinical practice. Ephedrine and its synthetic counterpart ephetonin have been used to raise lowered blood pressures, but though their action is certainly more prolonged than that of adrenaline they frequently produce undesirable side-effects. A synthetic amine —β-(*p*-oxyphenyl)-isopropylmethylamine—which is isomeric with ephedrine, recently introduced and studied in Germany, is said to have advantages over all similar compounds hitherto available. Its physiological properties have been thoroughly investigated in various laboratories by different observers, and their findings being substantially in agreement it is now on the market under the name of Veritol (Knoll). Its action lies between that of adrenaline and ephedrine; it resembles adrenaline in its low toxicity [1] and in the absence of toxic effects on the heart, and ephedrine in its long-continued action and its activity after oral administration.[2 3] Experiments by Mügge [4] suggested that the rise in blood pressure in cats receiving veritol was due partly to increased cardiac output and partly to peripheral vasoconstriction. Rein,[5 6] as the result of a laborious investigation on dogs, concluded that the essential action is a redistribution of blood from the depôts in spleen, liver, and great veins to the general circulation, and a consequent rise in the cardiac output. Veritol increases the coronary flow and in some of the collapsed animals not only raised the blood pressure from extremely low levels but kept it up for some hours. In these experiments anuria due to the lowered blood pressure was often replaced by diuresis after administration of the drug. In the healthy human subject 10 mg. injected intravenously raised the blood pressure for 15–20 minutes; after intramuscular injection the rise persisted for 40–60 minutes; the effect of 40–80 mg. taken by mouth lasted for two hours. It is reported that blood-pressure levels of 200 mm. can be attained in this way.[7]

As a result of these experiments numerous clinical trials of veritol were undertaken. Its use has been suggested by Robbers [8] in hypotension and collapse,

[1] Biehler, W., *Z. ges. exp. Med.* 1937, **101**, 62.
[2] Zipf, K., *Klin. Wschr.* 1937, **16**, 754.
[3] Eichler, O., *Arch. exp. Path. Pharmak.* 1937, **187**, 429.
[4] Mügge, H., *Klin. Wschr.* 1937, **16**, 1241.
[5] Rein, H., *Arch. exp. Path. Pharmak.* 1937, **187**, 617.
[6] Rein, H., *Klin. Wschr.* 1937, **16**, 700.
[7] Grosse-Brockhoff, F., and Kaldenberg, F., *Ibid*, p. 948.
[8] Robbers, H., *Münch med. Wschr.* 1937, **84**, 819.

in poisoning by carbon monoxide and narcotics, in infectious diseases such as pneumonia, diphtheria, and typhoid, and in surgical shock. Unfortunately few of these conditions lend themselves to controlled clinical study since in all of them a large proportion of patients recover sometimes in spite of rather than because of treatment. The most convincing objective evidence of efficiency is the rapid and sustained rise of blood pressure which takes place in collapse and shock. Robbers was able to demonstrate a rise of systolic blood pressure from 95 mm. to 130 mm. in a case of alcoholic poisoning after 30 mg. of veritol intramuscularly and from 90 mm. to 135 mm. in a case of primary post-operative shock after 75 mg. orally. In all his cases there was definite clinical improvement and some deepening of respiration. In its effect on respiration, however, veritol does not appear to be comparable with such substances as Coramine and Cardiazol. The main indication for the drug in the surgical field, according to Schneider,[9] is in the treatment of failure of the peripheral circulation during and after an operation. He found it possible to combat collapse even in cases where the blood pressure and pulse were no longer measurable. Repeated injections showed no decline in response. Mamier[10] has used veritol with success in bronchopneumonia in children, giving it by mouth alternately with cardiazol. He warns practitioners against the simultaneous use of these substances. Dieckhoff[11] describes the successful use of veritol for the acute heart failure of toxic diphtheria, which he has shown to be associated with a reduced blood volume.

It seems clear that veritol is capable of raising the blood pressure even in profound shock and it is possible that its use may sometimes turn the scales in favour of a patient. Experience has shown that physicians on the Continent tend to be unduly optimistic about the value of new drugs, but even when this possibility has been discounted, there remains enough evidence to make veritol worthy of trial in acute hypotension and shock, or wherever a rise of blood pressure is thought desirable.

BRUISES IN LEGAL MEDICINE

BRUISING is the commonest of all injuries. Sir Bernard Spilsbury said, in opening a discussion at the Medico-Legal Society on Oct. 27th, that it is taken too much for granted. The intelligent layman often dismisses all bruises as being merely different forms of a black eye, but actually, owing to the thinness of the soft parts around the eye and the comparative poverty of the circulation, this is not at all a typical bruise. The wide variation in the reaction shown by tissues to crushing gives bruises a distinct medico-legal interest. While a bruise is still fresh its shape is often a very accurate indication of that of the object which caused it. Sir Bernard had been able to say with confidence on one occasion that a certain part of the front of a motor-car had caused a bruise of a peculiar shape, like an irregular H, on the victim's body. The shape of a bruise, however, soon becomes distorted by spread of the fluids in the tissues; it is always larger than the object producing it. By their number, size, and distribution the bruises found on the body of a dead man may go far towards establishing the fact that the injuries were the result of aggression by another person. Bruises due to sustained pressure differ in appearance from those due to a violent impact. The time factor is also important: bruises come up quickly and conspicuously on the eye but not on the back, chin, or palm. Individual susceptibility of the victim also varies: some perfectly healthy people bruise easily; victims of certain diseases show bruises of the hæmorrhagic or purpuric kind; and boxers, who are subjected to very hard training, bruise less easily than ordinary persons. If death takes place soon after the injury no bruise may be visible, but one may appear later having taken some time to develop. This does not imply that a bruise may grow after death, though it may appear to do so because of the diffusion of fluids through the neighbouring tissues. The site of an injury may be revealed by an unusual distribution and order of appearance of the discoloration due to putrefaction. Some bruises of deep tissues may be missed because they do not show on the surface at all, and the pathologist must cut down through the skin, especially over the long prominences, to detect them. In some cases of violent death it may be necessary to cut the skin into strips to make certain of missing no important clue. Some speakers pleaded for fuller reports by police surgeons and others on the detailed appearance of bruises, but Sir Bernard reminded them that to provide these may take hours of work and may often be impracticable. Mr. C. A. Mitchell, D.Sc., suggested that in certain cases the skin should be photographed by infra-red sensitive plates, which will show up far more subtle colour changes than do ordinary plates. Another speaker said that a panchromatic film would give much useful information. There seems still to be scope for new methods in the investigation of such lesions.

CONTRACEPTIVES UNDER AMERICAN LAW

AN American correspondent has drawn attention to recent developments in the attitude of the United States courts towards the importation of contraceptives and contraceptive literature. The advocates of birth control claim that it is now settled that the American customs authorities cannot interfere provided that the consignee, even though he be a layman, is a person qualified to receive the goods. The fact of qualification, it is said, can be easily established by affidavit.

This does not seem to be one of those cases where the puzzled student must master the different systems of American courts or unravel the mysteries of the constitution of the United States. It is enough to know that the famous instrument of 1787, which so rigidly wrote down the relative functions of Congress (the legislative organ of the Union) and of the several States, set forth three main categories—first the things which Congress could do, secondly the things which Congress could not do, and thirdly the things which the separate States (otherwise almost all-powerful) could not do. Among the things which the American constitution allows Congress to do are the regulation of commerce with foreign States and commerce between the separate States of the Union, and the provision and maintenance of postal services. Questions about the importation of contraceptive devices or literature are governed by the federal Tariff Act. Through its powers over customs and over mail services the federal legislature is unquestionably acting here within its own rights. The United States Tariff Act specifically forbade the importing of contraceptives. Some American courts, however, have been inclined to hold that the contraceptives might be used for a legal as well as an illegal purpose. In a case arising out of the importation of a consignment of Japanese pessaries the judge took note of the fact that the consignee was a duly

[9] Schneider, D., *Klin. Wschr.* 1937, **16**, 736.
[10] Mamier, *Med. Klinik*, August 12th, 1938, p. 1068.
[11] Dieckhoff, J., *Klin. Wschr.* 1937, **16**, 1154.

authorised physician; the law he said, would not be so construed as to prevent physicians from importing contraceptive devices which they might wish to prescribe for the sake of saving human life or promoting the well-being of patients. The customs bureau of the Treasury Department at Washington thereupon circularised its collectors that the Tariff Act did not prevent the import of contraceptive devices by or for a physician if the collectors were satisfied that he was a reputable practitioner, and if he filed an affidavit stating that the goods were to be used only to protect his patients' health. Then came the question of contraceptive literature. In a test case involving certain books by Mrs. Marie Stopes, D.Sc., a court held that the Tariff Act did not exclude them. The customs authorities nevertheless seized and detained books of this nature, the Government relying on the general words in another part of the Tariff Act which prohibited any "importation contrary to law." The importers argued that this phrase occurred in a part of the Act which dealt with frauds on the revenue, smuggling, and irregularities of entry and could not apply to books. Test cases were fought on consignments of copies of the magazine "Marriage Hygiene" to Dr. Norman Himes, its American editor, and on the consignment of a book called "Parenthood" to a layman. After rather tedious litigation the Circuit Court of Appeal held that the Tariff Act did not apply because these were not imports. The court ordered that the copies of the magazine be released to Dr. Himes, because he, as American editor, was "qualified" to receive it, contraceptive literature being lawful in the hands of persons who would not abuse the information thus given. Dr. Himes was the most appropriate distributor; he might abuse his privilege; this risk did not cancel the privilege; if he did abuse it, he would be subject to punishment, but he was not so subject meanwhile nor could he be deprived of his property. The book "Parenthood," on the other hand, was not allowed to reach the layman to whom it was consigned. It was not forfeited; it was simply sent to the dead-letter office; it could not be released to the consignee because there was nothing before the court to show the consignee's qualifications to receive birth-control literature. The advocates of birth control would have liked a decision which would make all contraceptive books or pamphlets admissible into the country under the Tariff Act without any interference from the customs authorities. They obtained instead a decision that the books and pamphlets could come in if the consignee was demonstrably a person qualified to receive them. This they regard as a step forward in their campaign.

FLIGHT AND SHELTER

THE arrangements proposed for evacuating children and old people from London were announced over the wireless in the last days of September. To most listeners they came as a surprise, and in the home counties even greater astonishment was caused by the draconian demands made for accommodation in private houses. The steps taken may now be seen as an endeavour to carry out the recommendations of the committee under Sir John Anderson whose report went to the Home Secretary in July but has only now been published.[1] The committee's underlying hypothesis—that a third of the population may need to be removed from areas exposed to air attacks—seems to have led to a change of policy; for formerly the authorities put their emphasis on protection of urban homes from gas rather than on dispersal of the inhabitants into the countryside. The Government, however, has fully concurred in the proposals of the Anderson committee, and Sir John, as the new Minister for Civilian Defence, will be able to see that they are fulfilled. One of the main principles accepted is that (except in particular cases or particular areas) nobody should be compelled to leave home. On the other hand, no such option is to be left to the potential hosts; for refugees are to go mostly to private dwellings under powers of compulsory billeting. As Sir Samuel Hoare remarks, "these arrangements will require very detailed preparation in order to avoid unnecessary hardship either to the refugees or to the persons who receive them." It is calculated that five persons might be put in every four rooms (which in southern England would double the present population), and compulsory powers are thought to be essential if every rural householder is to be induced to fill his house to capacity according to this standard. It is to be hoped, however, that rules will not be allowed to take precedence of common sense; for in the heat of the recent emergency enthusiastic billeting officers made many absurd decisions. Batches of young children cannot be put in the sole charge of invalid women; many households are unsuitable asylums for the young; the claims of refugees cannot supersede those of the recipient's family, and it is possible, to say no more, that school-children would be better cared for in large groups in country houses, in charge of their teachers and of shifts of helpers, rather than in scattered cottages. While asking for powers of compulsion, the Anderson committee rightly says that "it would be unfortunate if the very real advantage of voluntary arrangements were to be lost"; they would prefer children to go to houses where children are wanted, and they see immense scope for voluntary effort in providing food and occupation for the refugees. We may add that in some country districts there is a feeling that even greater efforts should be made to maintain the voluntary principle: it is suggested that, once the quota of an area has been assessed, a local committee should be given full responsibility for allocating it among the various buildings, or at least that such a committee should be formed to advise the billeting officer. September's plans introduced (as a complainant put it) the conscription of married women in the home counties; and if the aim is to use the woman-power of the countryside to the best advantage it will often be best for the women themselves to organise their work collectively, so that individual burdens shall not be increased beyond bearing. In a properly elastic scheme it should also be impossible to repeat the mistake of sending children to villages infected, for example, by poliomyelitis, and we are glad to see it recognised that "the health services in the reception areas will have to be strengthened." The health services would have a great deal of work to do if the cities invaded the countryside, and the local service must take a substantial part in forming the local plans for meeting this invasion.

The object of evacuation is safety, and it is useless to remove people from one "target area" to another. The committee is perhaps too sanguine about the safety of small towns; for these, like children's camps, might well be attacked (as now in Spain) with the idea of drawing guns and aeroplanes away from the defence of more vital areas. Nevertheless, with all possible reservations, the removal of a third of the inhabitants of the great cities—including school-children and old people—would be an immense

[1] Report of Committee on Evacuation. (Cmd. 5837.) London: H.M. Stationery Office. Pp. 39. 9d.

relief; and, as the report remarks, the issue of a war might turn on its success. In the *British Medical Journal* last week a surgeon wrote of the sense of futility and bitterness with which he viewed the task that seemed to lie before him a few weeks ago; he saw it as an unending effort—useless from a military standpoint—to repair damage wrought by bombs on civilians who should not have been in London at all. Only those civilians should remain in the front line, he said, whose presence is essential; and in present circumstances all will agree with him. But according to current plans at least half or two-thirds will remain, including most of the wives of workers and many of their young children. The question arises whether much more elaborate provision for the safety of all these people should not be made. A.R.P. policy hitherto has been directed chiefly against the menace of gas, because protection against gas is much simpler than protection against high-explosive bombs. The main purpose, it is clear, has been to take enough precautions to prevent panic; for it is believed that guns, balloon barrages, and fighter aeroplanes would suffice to prevent any terrific destruction of life and that the real danger from air raids is not so much material loss as a collapse of civilian morale. Prof. J. B. S. Haldane, F.R.S., argues against this policy on various grounds, the chief of which is that protection against high explosives has proved vitally necessary in Spanish cities, and is even more applicable to this country. His book [1] puts forward a scheme by which brick-lined tunnels would be built at a safe depth (in London about 60 feet) below the towns in such a way that no dwelling would be more than 400 yards from an entrance and the entire population could take *secure* shelter when a warning is given. The scheme may sound fantastic; but he estimates that, by engaging unemployed miners, tunnels holding three-quarters of the population could be soon prepared at a cost of something like £400 million—"about one quarter of the sum which the Government proposes to spend on rearmament during the next few years." As compared with other means of defence, such as aeroplanes, the tunnels would have the advantage of being a permanent investment. They would threaten nobody and they would remove any hope of victory over this country by a knock-out blow.

In the House of Commons six years ago Lord Baldwin, then Prime Minister, said:

"I think it is well for the man in the street to realise that there is no power on earth that can protect him from being bombed. Whatever people may tell him, the bomber will always get through. . . . The only defence is in offence, which means you have to kill more women and children quickly if you want to save yourselves."

Prof. Haldane's book challenges these statements on the ground that the offensive defence is technically as well as morally wrong. Writing from experience of contemporary warfare in Spain, he pleads for the variety of defence which does not concentrate on destroying the enemy's women and children, and which accordingly rates the subterranean tunnel higher than the bombing plane. In so doing he recognises a psychological difficulty. During countless generations the soldier has been given a prestige and glory greater than the miner, though his work is seldom more dangerous and his courage in emergency no greater. Hence an expenditure of £400 million on army, navy, and air force does not seem excessive, whereas expenditure of the same sum on digging appears rather absurd. A second difficulty, he believes, is that military men are taught how to win battles and campaigns but not how to win wars; whereas the manœuvring of troops and the use of offensive weapons are not necessarily any longer the most important part of war. A third obstacle encountered by supporters of passive defence is that many industrialists are interested in the production of guns, ships, and aeroplanes; and even the concrete manufacturers are beginning to see the possibility of superficial street shelters; whereas no powerful or vocal interest would profit by setting unemployed miners to dig in the London clay—especially as most of the money would go direct to the miners in wages. Against this, if Prof. Haldane were proved right about the feasibility of building such tunnels, his proposals would have the goodwill of all who deplore the policy of ordeal and reprisal that Lord Baldwin unwillingly held to be inevitable. Sir John Anderson will have much to think about.

[1] A.R.P. By J. B. S. Haldane, F.R.S. London: Victor Gollancz. 1938. Pp. 296. 7*s*. 6*d*.

PENTOTHAL ACID

THE latest barbituric narcotic of which we have an account, Pentothal acid, ethyl (1-methyl butyl) thiobarbituric acid, appears to be a useful addition to the drugs that can safely be used to procure somnolence before the administration of the main anæsthetic. In the October issue of the *British Journal of Anæsthesia*, Dr. J. S. Horsley describes the result of three years' clinical and laboratory research with pentothal sodium which resulted in his trial of pentothal acid. The main chemical difference between the acid and the salt is in the much greater solubility of the latter so that the acid is relatively stable. It is supplied as a purified powder of a lemon-yellow colour which must be kept in tightly stoppered bottles, or else as tablets each containing 4 grains. Small doses are sedative, medium doses hypnotic, and large doses anæsthetic. Respiration is lessened by full anæsthetic doses but almost unaffected by doses recommended for basal anæsthesia. The drowsiness following anæsthesia from pentothal acid is less often associated with restlessness than is that after the other barbiturates. The chief practical advantage offered by this new basal narcotic appears to be its certainty of action when given by the mouth. Nembutal, for example, although valuable and much used orally, has the drawback that it cannot be relied on with the same certainty as when injected into a vein. Pentothal acid has been given by the mouth in a series of 500 patients. The dosage, however, needs careful arrangement, and after various amounts had been tried the conclusion was reached that the best results are achieved by giving 8 grains three hours before operation, repeating this dose at intervals of an hour, either once or twice according to the effect. Doses of gr. 8 given three and two hours before operation gave consistently better results than a single dose of gr. 16; this, in may be, is another example of that cumulative action of drugs which led to the conception of synergism.

Pentothal acid is one of the rapidly eliminated barbiturates. It certainly appears that a good case has been made out for its administration, without other drugs, as a basal narcotic.

ON Tuesday and Thursday, Nov. 8th and 10th, at 5 P.M., Dr. Harold Scott will deliver the FitzPatrick lectures at the Royal College of Physicians of London. His subject will be the conquest of disease in the tropics.

SPECIAL ARTICLES

UTERINE INERTIA

MR. JEFFCOATE'S BLAIR-BELL LECTURE

AT the British College of Obstetrics and Gynæcology on Oct. 28th, Mr. T. N. A. JEFFCOATE of Liverpool delivered the first William Blair-Bell memorial lecture. His subject, uterine inertia, was, he said, one in which Blair-Bell had always been particularly interested. His views had been at variance with those of most obstetricians of his day, but were becoming more and more accepted, in modified form. Blair-Bell had been the first to use posterior-pituitary extract in all states of uterine atony. He had recognised a physiological, protective, reflex type of inertia occurring at the beginning of labour, and had considered that all other types were caused by deficiency of pressor substances in the blood stream.

Mr. Jeffcoate then reviewed the physiological processes concerned in uterine inertia. The physical development of the uterus during pregnancy was of first importance to its behaviour during labour. The development was dependent on nutrition, but for the most part due to the effects of corpus luteum and œstrogenic hormones. As the œstrogenic hormone became more and more dominant just before labour, so did uterine sensitivity increase. When the sensitisation was completed, any minor stimulus, such as an emotional change, might be sufficient to initiate labour. Possibly the œstrogenic hormone provoked the onset of expulsive contractions. The view that the oxytocic principle of the posterior pituitary caused the onset of labour had still to be disproved. The factors which brought about the onset might be assumed to be of first importance in maintaining contractions during labour, but they might have the assistance of parasympathetic nervous stimuli. The belief that dilatation of the cervix was brought about by the pressure of the bag of membranes had been disproved by the recent widespread use of artificial rupture to induce labour. The cervix was by no means purely passive, but actively contractive and retractive, its action being favoured by an accurately fitting presenting part. The nature of uterine contractions and the progress of dilatation largely depended on the relation between passenger and passages, but endocrine factors were also important, especially the œstrogenic hormone.

A CLINICAL STUDY

The lecturer then described a series of experiments on the effect of œstrogenic hormone on patients suffering from uterine inertia in labour. To avert emotional complications, and the confusion of weak but painful contractions before the onset of true labour, only cases of inertia of long standing, with complete or almost complete cessation of pains, were accepted; ordinary methods of treatment were always tried first, and the results were assessed by an independent experienced observer. Only 88 cases out of a series of more than 12,000 confinements had fulfilled the conditions laid down. The duration of contractions and the intervals had been charted before, during, and after treatment. The hormone had been given intramuscularly, usually at intervals of one hour for 8–10 hours. The dose had been 2 mg. in the case of œstradiol benzoate in oil and œstrone benzoate in oil; 1 mg. of œstrone in oil, and 0·04 or 0·05 mg. of œstrone in aqueous solution. Only 16 of the 88 patients had been in labour less than 24 hours when treatment was begun; the average duration was 45·8 hours. Successful treatment did not imply delivery by natural forces alone, as there might be complications such as fœtal distress; the success of treatment was gauged by its effect on the progress of labour.

The remedy had been successful in 50 cases (57 per cent.) and labour had been completed spontaneously in 27 (54 per cent.) of these. Excluding cases of Cæsarean section, the average duration of labour after the beginning of treatment had been 9·5 hours.

This series of cases supported Blair-Bell's view that there was no theoretical or practical reason for regarding primary and secondary inertia as separate clinical entities. In that classification there would have been 67 primary and 21 secondary inertias, the results of treatment with œstrogenic hormone being similar in both groups. The response to the hormone bore no relation to the time of onset of the inertia or to the stage in labour at which treatment began. It did, however, vary according to the presence or absence of mechanical difficulty. Cases complicated by some form of disproportion or malrotation of the head reacted badly, only 12 out of 37 (32 per cent.) deriving any benefit. Sometimes there was improvement in strength and frequency of the contractions, but the cervix rarely dilated satisfactorily, and labour did not progress until the fault was corrected. In cases not complicated by mechanical misfits, there had been only 5 complete failures. The incidence of difficulty in the third stage was unusually low for the severe types of inertia comprising this series; there was only 1 case of moderately severe post-partum hæmorrhage and 4 cases of slight hæmorrhage. Two placentæ had had to be removed by hand. There seemed to be no adverse effect on either mother or child. No general or local reaction had ever been observed, and there had been no violent or spasmodic contractions. Of the infants 14 had been born dead and 5 had died in the neonatal period, but there had been no evidence to connect the deaths with the treatment.

Laboratory experiments suggested that œstrogenic hormone only stimulated the uterine muscle some hours after injection. Clinically, however, good and often brilliant results quickly followed administration, the time of onset of the improvement varying from ten minutes to three hours. It might be that the human uterus responded better than the rodent uterus. Only a few cases had been treated with aqueous solutions, but the impression was that these minute doses were as effective as a larger amount dissolved in oil. Since there was a latent period between the injection and the effect, it was logical to assume that the hormone had a great prophylactic value. It was impossible to forecast inertia, but œstrogenic hormone had been given to 51 women in whom there was definite reason for expecting prolonged and difficult labour. A dose of 2 mg. had been injected at intervals varying from 1–12 hours for periods of 1–21 days before delivery. The best results followed administration at 8- or 12-hourly intervals for four days or longer. In spite of malpositions, minor degrees of pelvic contraction, atony, and hydramnios, the average duration of labour had been within normal limits, and the incidence of instrumental deliveries had been low. In most cases the rapid and easy evacuation of the uterus had been quite unexpected. There had been 3 cases of inertia, and these had been in patients who had had very little hormone and for a period of less than forty-eight hours.

THE VARIOUS FACTORS

Clinical experience did not support the view that debilitating disease and under-nourishment caused inertia. Primigravidæ over the age of thirty were particularly liable to it, as were women of heavy build, often frankly adipose or masculine. In practice it was rarely possible to ascribe disordered action to local disease in the uterine wall. An over-stretched muscle lost its power of contraction, yet hydramnios and multiple pregnancy were usually associated with premature onset and rapid labour. Mechanical error in the relationship of the passenger to the passages was of great importance. The nature of the connecting link might be disputed, but probably the inertia was reflexly caused by the mechanical obstacles. Nervous exhaustion was more important than muscle-fatigue. A full bladder and rectum reflexly inhibited contraction; faulty stimulation by the presenting part probably also produced its effect by a nervous route. Nevertheless, the evidence went to show that hormonic principles were much more vital than nervous stimuli. Emotional factors must not be forgotten, fear being the most important. The administration of sedatives still remained the first measure in all cases of inertia. Valuable though the hormone treatment was, it was only to be regarded as an accessory measure. It should be used in cases where the uterine action was not improved by sedatives and antispasmodics. It not only enhanced the power of uterine contraction but also regulated and coördinated it. Information about the fate of the hormone after its injection was needed.

The endocrine aspect of uterine inertia was intriguing, and investigation into it had only just begun. Further inquiry would help to solve the mystery of uterine inaction.

MENTAL HEALTH IN 1938[1]

OVERCROWDING in public mental hospitals is recorded by the Board of Control every year. The Board anticipated in their last report that overcrowding would become even more serious in 1937 and their prophecy was duly fulfilled, though accommodation was increased by 1575 beds with the opening of the new hospital at Runwell and by various minor extensions at other hospitals. The total number of patients under care in county and borough mental hospitals throughout the country has increased by 2201, a figure which is very high in comparison with the average for the last five years (1687). The aggregate number of patients in excess of the authorised bed space at the end of the year was 3608, the largest figure ever recorded. Nor are the prospects at all good. The number of new beds opened in the next two or three years is bound on the most favourable estimate to fall short of the increase of the number of persons under care. Assuming that the death-rate remains at or near its present level, the Board expect no improvement in the position until the new mental hospitals now being built at Laythorn for Lancashire and at Margaretting Hall for Essex are ready to admit patients.

The total number of persons suffering from mental disorder under care in England and Wales at the end of the year was 157,353, an increase of 1831 during the year. The last quinquennial average increase is 1716. The number of direct admissions to public mental hospitals was 26,892, as against an average of 23,597 for the preceding five years. Voluntary admissions totalled 8414 as compared with 6904 in 1936; they accounted for 31·3 per cent. of the total admissions. Temporary admissions increased slightly: from 1361 to 1404. It is probable that procedure under section 5 of the Mental Treatment Act, 1930, will not become popular until the section is amended in some way. The Board regard the increase in the number of voluntary admissions as an encouraging indication that the value of early treatment is now more generally recognised. It is, however, singular, in their view, that the certified admissions amount to the same figure as in 1935. The progressive reduction in the number of certified admissions has, for some reason not yet explained, been checked in spite of the rise in voluntary admissions.

OUT-PATIENT CLINICS AND THEIR STAFFS

Little progress seems to have been made in the establishment of out-patient centres under the 1930 Act. The number is only 167 as against 165 for the previous year. Although the number of sessions is increasing, many centres seem to be mainly diagnostic. Without minimising the value of early diagnosis the Board think that more might be done in the way of continued treatment of those disorders which do not necessitate admission to hospital. While the out-patient centre is a valuable means of attracting voluntary patients, this is far from being its sole function. The problem is one, of course, of the enlistment and maintenance of a properly trained staff. Psychotherapy demands a great deal of time and is practically out of the question at a clinic that only meets once or twice a month. If centres continue to be staffed inadequately by doctors who have to give up part of their leisure to out-patient work, there is little hope of their development. The Board adhere to their view that it is important to associate the mental hospital staffs with the centres, but point out that to do so does not mean that centres must necessarily be staffed entirely by whole-time mental hospital officers. The difficulty might be met to some extent by attaching part-time physicians to the centres, as is done with outstanding success at the Hill End Hospital, St. Albans. The advantages of such an arrangement are that it lightens the burden on the whole-time staff, not all of whom are sufficiently experienced or qualified for out-patient work; and it gives men and women interested in this work a chance to establish themselves in private practice in psychiatry. One of the great handicaps to the fruitful development of out-patient mental work is that to embark on this specialty outside London is such a hazardous adventure. Part-time posts in centres would at least help to some extent those who contemplate such a career to avoid too great or prolonged a drain on their resources. Apart from the help they would give the general practitioner, a larger infusion of private practitioners in psychiatry would have a stimulating effect on the development of this specialty. It is not a good thing, the Board say, for any branch of medicine to be represented solely by whole-time salaried officers.

CARDIAZOL AND INSULIN FOR SCHIZOPHRENIA

The reported results of Cardiazol treatment in schizophrenia have been so striking that the Board considered that they justified a special investigation. They accordingly sent Dr. Rees Thomas and Dr. Isabel Wilson to study the treatment at Budapest,

[1] Twenty-fourth Annual Report of the Board of Control for the year 1937. Part I. H.M. Stationery Office. 1938. Pp. 78. 1s. 6d.

Vienna, and Frankfurt, and a report of their findings will be issued in due course. The Board regard it as most encouraging that at last a determined effort has been made to devise some active treatment for a form of mental disorder which accounts for such a large proportion of the permanent population of mental hospitals and has in general proved so intractable. They hold that even if some of the recoveries attributed to cardiazol and insulin might have been effected by older forms of treatment, the speeding-up of recovery which the new treatments secure is a substantial advance.

APPOINTMENT OF SUPERINTENDENTS

The Board feel some apprehension at the tendency among local authorities, when appointing superintendents, to fix the upper age limit unduly low. One authority placed the limit at 40, a figure which must restrict the field of selection and may result in the appointment of men who have had only limited experience as deputies. The office of superintendent calls for an experience and a knowledge of the world which few can acquire without a reasonably long training as second-in-command. While the mistakes made by a deputy can usually be corrected, those of a superintendent may entail a disastrous loss of prestige. Moreover, if young men are appointed to command, they may hold the top posts for an undesirably long time and leave many capable men to spend the last twenty years of their service with no hope of promotion. The Board are opposed to a system which determines success or failure before a man has reached the middle of his medical career. Young candidates, they point out, are not always the best men merely for that reason. They would apply the same principles to intermediate appointments.

AIR-RAID PRECAUTIONS

The Board have been asked by many superintendents and others to advise on the air-raid precautions which ought to be taken at institutions under their charge. Since local conditions which must determine the appropriate measures vary so much, no general answer can be given. A protective scheme has been devised at Barming and air-raid drill has been practised with success. The better types of patient have shown an intelligent interest in these drills and a surprising willingness to learn how to use gas-masks. Some of them have performed the duties of wardens very satisfactorily, and, under the leadership of a member of the staff, will probably be effective participants in the general scheme. The Board quote the opinion by Dr. Hancock and Dr. Forsythe[2] that "contrary to popular belief, panic is perhaps less probable among the mentally sick than among members of the general civilian population."

NURSES' MEALS

A plea is made for a little more imagination in the planning of nurses' meals. The Board have been impressed with the merits of the cafeteria system, and have suggested before that it might be tried in English hospitals. While much has been done in many hospitals—especially where there is a nurses' home—to make meal-times more tempting by the use of small tables and in other ways, in others the nurses' dining-room remains grimly institutional. They suggest that, while the patients have first claim on the produce of the hospital gardens, there is no need for them to monopolise the flowers. Half-cold food and aspidistras are a poor preparation for a long afternoon in the wards; bright table-linen and fresh flowers cost little and make a meal inviting instead of merely a dreary interval in a long day. The use of a little more care in the preparation and serving of nurses' meals and the provision of a greater variety of dishes is one of the ways in which the mental nursing service might be made more attractive to suitable women.

[2] *Lancet*, 1938, 1, 589.

CAMPS.—AMUSEMENTS

An experiment tried by Nottingham Mental Hospital, which held a holiday camp in a large estate it owns just outside the county, proved a success and was not very expensive. Men and women were sent in alternate parties to spend a few days under canvas, and apparently enjoyed the experience. Many patients in mental hospitals are young enough to appreciate the delights and ignore the discomforts of life under canvas, and the Board commend the suggestion to authorities with large estates.

The Board note with interest the introduction at Wadsley of a toy electric railway which has been very useful in obtaining the interest and coöperation of the more confused schizophrenics. They wish that some equally ingenious distraction could be devised for the female side. Running model trains has always been regarded as one of the rewards of fatherhood, and the fascination it exerts seems to be an exclusively male reaction.

SOCIAL WORKERS

Psychiatric social workers are still new enough for their functions to be comparatively unknown, even to medical men in charge of mental patients. The service can play a most important part in mental health work. The Board believe that social workers should be included as part of the team of the hospital workers and should have special training and qualifications. They need not only an understanding of the patient's mentality but also practical experience of economic and social conditions in the community. The social worker, by her access to the personal, family, and social history of the patient, may give the mental hospital officer invaluable assistance in diagnosis. While a patient is under treatment in hospital, the worker can prevent him from losing touch with his home and keep the relatives informed about his health. Perhaps her greatest scope is in preparing the way for trial of home life or discharge. When a patient leaves hospital the most powerful factor in his recovery or relapse may be the attitude of his relatives. Sometimes this is faulty merely through ignorance of what his illness has meant. In the delicate task of explanation and of assessing personal relationships, the social worker will need all her experience of human beings and all her judgment. She also needs knowledge of social legislation and social agencies, and a technique of coöperating with them. She may have to deal with such problems as a debt which threatens the whole security of the home, loss of employment—perhaps due to a patient's behaviour at an early stage in his illness—or delinquency among other members of the family. A social worker can also help a discharged patient through difficulties of re-establishing himself in the community which may otherwise be too much for him.

Mental Deficiency

The number of mentally defective patients under care at the end of 1937 was 86,510, including 37,817 cases under statutory supervision. The number of defectives reported to local authorities was 121,977, an increase of 4830 over last year's figures. A continuous increase has taken place during the last

decade in the number ascertained. The number notified under the Mental Deficiency Act, 1913, S. 2 (2), has decreased, and the Board say that fuller advantage should be taken of this section, which lays on a local education authority the duty of notifying the local authority of children over seven who are defective from an educational standpoint. The present lack of uniformity of method is shown by variation in the numbers notified in different areas relative to the population. This variation is not only between urban and rural areas, but must in the main be attributed to differing standards of activity and of coöperation between education authorities and mental deficiency authorities. The need for closer coöperation is very great, for feeble-minded children who cannot compete in the labour market are apt to become expensive to the ratepayer by falling into trouble from which they might be saved by timely help. The Board consider this to be by far the most urgent question in relation to ascertainment which local authorities have now to face. The number of mental defectives receiving poor relief has decreased by about 22 per cent. in the last five years, through the gradual transfer of defectives from public assistance institutions to colonies, and through the provision of financial help through mental deficiency committees rather than as out-relief. This policy carries out the principles embodied in the Local Government Act, 1929, and the Board hold that it should be generally adopted throughout the country.

The net addition to the beds available in local authority institutions was 1403 as compared with 779 in the previous year. The progress is encouraging, though the total accommodation is still far short of what is necessary. The Board see signs of a growing recognition in the country that it is neither economical nor humane to leave the socially unadaptable defective to become a delinquent or a chronic unemployable. Colonies though costly are in the long run cheaper than the results of inaction. Mental defect is a formidable charge on the community, but the charge is not avoided by attempting to ignore it.

PATIENTS ON LICENCE

The success of the licensing system, as the Board pointed out in a circular last year, depends mainly on a careful choice of patients and of the homes to which they are to be sent. To license high-grade patients to their own parents is generally unwise, for these have probably already failed to manage the patient and are often mentally subnormal themselves. Given a wise choice of patients and of homes, however, there can be no better way of testing a patient's fitness for discharge. To discharge a patient directly from a certified institution without trial on licence is almost always a risky experiment. Any restriction on the use of licence must inevitably lessen the number of discharges and so convert an order under the Act into a life sentence. Practical help and regular and sympathetic visitations are essential to success. It was unfortunate that a case (Holgate *v.* Lancs Mental Hospitals Board) should have come before the courts in 1937 in which a defective on licence caused severe personal injury to an elderly lady and heavy damages were given against the committee and the superintendent. This decision has led to a tendency to restrict the use of licence. The Board do not agree that a defective should be left on licence indefinitely except in special circumstances. Young women with no homes of their own will be far safer if they have an institution to which they can return in time of sickness or unemployment. In any case the possibility of recall supplies just the element of restraint which may save the patient from his own impulses. Nevertheless, the Board are convinced that public opinion will not acquiesce in the indefinite legal control of defectives who have indicated that they can adapt themselves to life in the community. They therefore hold that, when a licence has been current for two or three years, the case should be considered with a view to discharge or transfer to an alternative form of care.

HOLIDAY HOMES

The idea of holiday homes is spreading. A few large institutions have holiday branches, and a large number of other committees send groups of defectives away during the summer months. The four homes of the Central Association for Mental Welfare have encouraged committees to participate in this excellent movement. Twenty-three parties were sent to these homes from mental hospitals, compared with only two parties last year. There is, however, some evidence that the inhabitants of seaside resorts and visitors to them object to an invasion of patients, especially where the beaches and esplanades are small and crowded. In order to prevent a set-back to the movement the Board have advised local authorities to bear this evidence in mind in selecting places to be visited.

MEDICINE AND THE LAW

Liability for Nurse's Negligence

IN a standard legal encyclopædia of high authority there is a statement that a public or voluntary hospital, having fulfilled its duty to employ duly qualified nurses, is not liable for the negligence of a duly qualified nurse when she is performing nursing duties in which she exercises professional skill, although the hospital is liable for her negligence when she is performing purely ministerial or administrative duties. This statement is challenged in the current issue of the *Law Quarterly Review* by the editor of this paper, Prof. A. L. Goodhart. He remarks that it expresses categorically a view of the law which Lord Wright (in Lindsey County Council *v.* Marshall) described as still uncertain. His examination of the position is of great interest, though one must not overlook the practical consideration that a hospital has to take account of the law as laid down by the judges rather than of the law as it ought to be. His view, it would seem, cannot be accepted until confirmed by some high appellate tribunal.

THE RELEVANT DECISIONS

In his admirable summary of the relevant decisions, from which we venture to borrow freely but which should be studied in its full context, Prof. Goodhart begins with the case of Hall *v.* Lees (1904), which he thinks has had a slightly misleading effect because the special facts have been ignored. The Oldham Nursing Association, whose object was the supply of qualified nurses to attend patients in their homes, sent to Mrs. Hall a nurse who burned her by the application of a hot-water bottle. When sued for damages, the defendant association was held not liable because it undertook only to supply a competent nurse and not to nurse the patient itself. The special fact which, in his opinion, largely explains the decision is that the defendant body used a printed form indicating that the applicant for a nurse's services would be deemed to be the employer of the nurse. The nurse was working in the patient's home and under the patient's control. This special fact was absent in the well-known case of Hillyer *v.* St. Bartholo-

mew's Hospital (1909) where the court said that it was obvious that, if hospital authorities had done their best to secure a competent staff, their liabilities should cease there "as they cannot possibly supervise by personal attendance the work of the physicians and surgeons in the wards." Hillyer, it will be recalled, was a charity patient whose arms were injured while he was being examined under an anæsthetic in the operating theatre by a surgeon of his own choice, assisted by anæsthetist, nurses, and carriers. The principle was established that the hospital could not be liable for the surgeon's negligence; he was not acting as its servant; it merely gave him a place where he could perform his professional work. Prof. Goodhart remarks that in subsequent litigation and in text-books Hillyer's case has been vouched as authority for the principle that nurses (as well as surgeons), when acting professionally, should not be treated as servants so as to make the hospital liable for their negligence. Actually, he points out, Hillyer never proved any negligence against the nurses or the carriers though the judges were willing to treat them as the hospital's servants for this purpose if negligence had been proved. Surgeon, nurse, and carrier cannot be graded in one common class. If, for instance, it could be said that the nurses performed professional work, the same could hardly be said of the carriers. In Hillyer's case Lord Justice Farwell, after holding that the doctors were not the servants of the hospital, did say that the three nurses and the two carriers stood on a somewhat different footing; he would assume that they were the servants of the hospital for general purposes, but were not so for the purposes of operations and examinations by the medical officers. If and so long as they were bound to obey the orders of the governors of the hospital, it might well be that they were the governors' servants. "But, as soon as the door of the theatre or operating-room has closed on them for the purpose of an operation (in which term I include examination by the surgeon), they cease to be under the orders of the defendants and are at the disposal and under the sole orders of the operating surgeon until the whole operation has been completely finished; the surgeon is for the time being supreme and the defendants cannot interfere with or gainsay his orders." Prof. Goodhart emphasises that this dictum does not support the wide statement in the legal encyclopædia mentioned above; instead of saying that the hospital is not liable for the negligence of its nurses (if the duty to employ properly qualified nurses is fulfilled) when they are performing duties which involve professional skill, the Lord Justice says that it is only when the nurse is in the operating-room that the hospital is not liable for her acts. The editor of the *Law Quarterly Review* goes on to give his reasons for thinking that even this limited exemption from liability is doubtful. He continues his examination of the cases, including Strangways-Lesmere *v.* Clayton (1936) where Mr. Justice Horridge held that the hospital was not liable for the negligence of two nurses who administered an overdose of a dangerous drug; the hospital authorities did not undertake to administer the dose—"the nurses, in doing that, were doing their own work as skilled nurses and not as servants of the hospital authorities." The judge was consciously aligning himself with an unreported decision of Mr. Justice Swift in James *v.* Probyn where it was said that "the duties of doctors and nurses are the duties of skilled people to be carried out by skilled people, and the actions of doctors and nurses cannot be controlled, in my opinion, by members of a committee who do not for one moment pretend that they have the knowledge or the ability to perform those duties themselves." Prof. Goodhart contends that this statement is wrong in putting doctors and nurses in the same category; a hospital cannot control the way in which surgeons and physicians work, "but it is contrary to ordinary experience to say that nurses are not supervised or controlled in their work." Prof. Goodhart wants to apply the ordinary law of master and servant to hospital and nurse. Here he fortifies his argument with the recent case of Wardell *v.* Kent County Council where a fully qualified and trained nurse, employed at the council's hospital, was severely injured in heating a tin of some substance which was to be applied to a patient. She claimed under the Workmen's Compensation Act; the county court judge said she was not a servant, but the Court of Appeal held the contrary. Lord Justice Greer thought that, if this conclusion was right, it destroyed the value of the dictum in Hillyer's case. Prof. Goodhart thinks the dictum no longer supportable.

NO FINAL DECISION

This analysis of the liability of hospitals for nurses, it may be repeated, lacks at present the authority of a decision of the House of Lords. In particular the bearing of the statutory and artificial liability under the Workmen's Compensation Act upon the liability of a hospital for a nurse's negligence would justify most careful deliberation. It would nevertheless be a mistake to dismiss an article in the *Law Quarterly Review* as merely academic and speculative. If the arguments have not yet been heard in court, they will doubtless be heard some day on behalf of a plaintiff whom they have inspired with optimism. Prof. Goodhart draws from American and Canadian sources with which he is specially familiar. There is, as he shows, a further parallel in Scottish decisions. In Lavelle *v.* Glasgow Royal Infirmary (1931) the patient was burned by ultra-violet ray treatment given by a nurse on a doctor's instructions. The court held unanimously that negligence on the nurse's part had not been proved; on the other hand the court was not unanimous on the point whether, if negligence had been proved, the Royal Infirmary could have been held liable. Lord Hunter said that the managers of a hospital do not go to the public with a profession of themselves operating on, or nursing, or treating patients. Lord Anderson, on the same lines, said that the managers did not hold themselves out as qualified to cure disease; "accordingly they cannot, in my opinion, be held responsible for the negligence of the nurse in the course of doing what they do not profess to perform." From the majority judgment of these two colleagues Lord Alness dissented. He put the distinction for which Prof. Goodhart is arguing. The positions of physician and nurse, he suggested, are in marked contrast. The physician has uncontrolled direction in treating the patient; he is servant of no master. "The nurse, differing from the doctor, is controlled at every point; she was controlled in this case by the superintendent, by the matron, by the doctors and by the residents; that she is a servant and has a master seems to me indubitable—the problem is to find him." The majority opinion, and not the minority opinion, was naturally followed two years later in Reidford *v.* Magistrates of Aberdeen where it was alleged that hospital nurses had negligently failed to administer at regular intervals certain alkali powders ordered by the doctor. The Scottish Court unanimously exonerated the hospital from liability. "A qualified

nurse in attendance on a medical or surgical case," said Lord President Clyde, "is no more under the orders of the managers than the doctor or surgeon." His insistence on this point was accompanied by the qualification that in a small-scale hospital she might not be "exclusively employed within the functions and limits of her professional skill and experience"; the terms of her engagement might involve her doing such menial work as washing the floor which had nothing to do with professional skill.

THE OUTLOOK

There, then, is the legal problem which can be studied more fully in Prof. Goodhart's article from which these instances and arguments are taken. In practice, of course, it will not be approached along exclusively juridical lines. A plaintiff will prospect in what he fancies to be the richest soil. If nurses make a mistake, he will doubtless prefer to sue the hospital authority if it be a body like a county council with the ratepayers' money behind it. Alternatively he may attack the medical practitioner whose established position may hopefully suggest strong financial reserves. The last person he is likely to seek a verdict against is the nurse whose remuneration and resources may deny him the fruits of his judgment. The nurse is in the difficulty that, if her training, professional skill, and responsibility are taken with increasing seriousness, she is legally the more vulnerable—a position only to be met by some system of insurance. Finally the surgeon has to note that judicial dicta incline to see in him the totalitarian master in the operating theatre. If the nurse is not liable when inside those doors because she is obeying a dictator's orders, the plaintiff's case against the surgeon is reinforced. Surgeons can but ask the courts and the public to listen to an answer which at any rate is based on common sense. The task of operating, they can fairly say, will be attended with far greater risk to the patient if the surgeon is to be distracted from his delicate and exacting duties by a supposed obligation to investigate continuously and at every moment the performance of complementary tasks by the trained members of his team.

INDUSTRIAL HEALTH RESEARCH

THE BOARD'S TWENTY YEARS

ONE of the good things that arose directly out of the late war was the Industrial Health Research Board, which during the last twenty years has done much useful work on the physiological laws governing human efficiency. The eighteenth annual report of the Board[1]—it was for some years called the Industrial Fatigue Research Board—contains an account of the investigations made during its twenty years of existence, as well as the usual résumé of the activities of the staff during the past year (July, 1937, to June, 1938).

HOURS AND ENVIRONMENT

It is unfortunate, to say the least, that there is at present a stimulus towards maximum production in industry comparable with that felt during the war of 1914–18. But in the intervening years great changes have taken place in industry itself. The rapid advance in mechanisation, together with the introduction of systems of "speeding up," have altered both the conditions of work and the type of worker. Light repetition work has tended to increase at the expense of heavier labour so that the worker on the whole is required to be of more stable temperament and to have more dexterity than muscular strength. At this time, therefore, when industry is again being pressed for quick results, it is peculiarly fitting that the lessons that have been learned should be restated and emphasised. One of the most important, and one which employers and employees alike are apt to forget, is the apparent paradox that long working hours are not conducive to maximum production. In fact it has been shown repeatedly that long hours of work in many processes bring about an actual reduction of output. Apart from short working hours many other factors such as rest-pauses and avoidance of monotony improve the output and the health of the workers. It has been clearly shown that output, which is one of the best objective measures of fatigue, varies with the individual worker's ability to make and sustain an effort for a spell, for a day, for a week, or for longer periods, by night as compared with day, and under different systems of shift working.

Environment plays a large part in the health and comfort of the worker. He is sensitive in varying degrees to changes in the temperature, humidity, and in the movement of the air about him and also to the intensity and character of the lighting arrangements in his workroom. All these factors have been studied in great detail by the Board's scientific workers and practical results have been obtained which are reflected in some of the provisions of the Factories Act, 1937. Attention has also been given to the effects of noise on health. In the popular mind noise is generally associated with intensity or loudness of sound, but this is by no means the only characteristic of noise which can produce disturbing effects. Persistent, unfamiliar, or indeterminate but not necessarily loud noise can also be profoundly distracting or irritating. Industrial noise has so far been shown to affect the functions of the body only in a few occupations, such as boiler-making, riveting, and fettling with pneumatic tools. In these occupations the persistent intense noise can produce a form of deafness amongst the workers. Evidence has been produced to show that the wearing of ear-protectors to cut off some of the noise is of some benefit both to the health of the worker and to output. The physics of noise, particularly in regard to the measurement of its intensity, has also been studied in detail.

Another part of the Board's activities has been directed to the physiology of muscular work and some of the most practical results have been obtained from studying the physique of the worker and weight-lifting, barrow-wheeling, time-motion study, posture, and the design of machinery in relation to the operator.

SELECTION OF THE RIGHT WORKER

The problem of vocational suitability has been approached from the point of view of the industrialist and also from that of the educationist. The employer wants psychological tests that will help him to select the best type of worker for a particular occupation, whereas the educationist needs to know how far similar tests will assist him in giving advice on the choice of a career. This branch of applied psychology is still in an experimental stage, and although many tests have been devised for measuring intelligence and the special abilities, they are not yet relied on to any extent in practice for the acceptance or

[1] *A.R. industr. Hlth Res. Bd, Lond.* H.M. Stationery Office. 1938. Pp. 60. 1s.

rejection of candidates for initial employment. Selection tests in vocational guidance, however, are being used by the Defence Services, the Ministry of Labour, and education and prison authorities and also by industrial and commercial organisations.

It has been known for some time that some individuals—as for example maids who frequently break crockery—are more liable to accidents than others, and the Board's investigators have established the fact that, given equal exposure to risk, about three-quarters of recorded accidents happen to one-quarter of the people exposed to risk. The same proportion of accident-prone people, as they are called, is to be found in recorded accidents in factories, on the roads, and in the home. Productive tests of the sensorimotor or "æstheto-kinetic" type have been shown (on paper) to select workers with a low degree of accident-proneness for skilled occupations, and the Board believe that by their use the accident rate of boy apprentices to skilled trades could be appreciably reduced. The application of these tests to motor-car drivers and to other road-users is, for a number of reasons, not thought to be practicable at the present time.

SICKNESS OF MIND AND BODY

For the past ten years the sickness absence records of various firms have been investigated to see if any light could thereby be thrown on the causation of industrial sickness, but the problem has been shown to be extremely complicated. The difficulties are well illustrated in the recent inquiry into the gastric disorders of bus-workers. An outstanding problem that is still untouched is the effect on workers of the increasing standardisation of industrial processes, and the types of workers who are able, or unable, to adjust themselves to the changed conditions.

The study of the psychoneuroses in industry arose out of the report of the departmental committee on telegraphists' cramp (1911) when the committee had taken the view that writers' or telegraphists' cramp was a disease of the central nervous system. Investigation by members of the staff of the Board showed that it had nothing to do with such factors as the type of keys, hours of work, or posture; while the physical signs were often contradictory in that visible spasm and general muscular weakness might or might not be present, and that the disability might be specific for a single letter or for special words. After long years of study the investigators found that the majority of the victims of telegraphists' cramp were unbalanced emotionally. Closer attention was paid, therefore, to these "nervous" symptoms or psychoneuroses, and two main groups of symptoms were distinguished—"anxiety" and "obsessional" symptoms—although there was no clear-cut line amongst the infinite variety of nervous symptoms encountered in individual cases. No significant age or sex distribution in the incidence of these symptoms was found. It is thought that some environments more than others are suitable to nervous subjects who appear in some cases to select for themselves the environment in which they could work best. Again many of them reach middle age with a minimum of absence from work due to sickness, a fact which shows that a nervous symptom is not necessarily a disability.

Statistical investigation has been made into the connexion between artificial humidity and sickness in cotton card-rooms (1927); into the incidence of respiratory diseases in card-room workers (1930); and also into the sickness rates in printers (1929). More recently the incidence of gastric sickness in motor-bus workers has been made the subject of a statistical inquiry [2] and it was found that, in comparison with tramwaymen, bus-workers do show some excess of gastric troubles. Latterly the work of the Board has become more associated with the clinical and pathological problems of industrial disease, and this is reflected in the appointment of a committee of the Medical Research Council to promote and direct research into industrial pulmonary disease; and of another committee to deal with the injurious effects of industrial solvents. Amongst the activities of the former committee is the investigation of the problem of chronic pulmonary disease in coal-mines, but up to the present time no results are ready for publication. The work on the toxicity of industrial solvents is progressing steadily and a useful bibliography has already been published.

THE TREND OF INQUIRY

In the section of the report dealing with the past year, progress is recorded in the long-range investigations undertaken by the staff.

As a whole the report shows how the Board began their work on the study of fatigue induced by long hours of labour and unsuitable conditions of environment, and were then confronted with complex problems of industrial psychology and physiology, and have been led finally to the investigation of concrete problems of disease. It is a matter of some satisfaction that the evolution of the Board's attention has been towards the study of definite diseases, because however valuable may be the separate contributions of the statistician-physiologist and the clinician, the separate results of each tend to leave an impression of incompleteness. The clinician has been accused on occasion of having his judgments disturbed by emotion about his individual cases, but it is not at all certain that the statistician always views dispassionately his figures and formulæ and correlation coefficients. In the study of problems of health and disease the clinician and the statistician are able to make equally important contributions, and ideally they should work together.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

EDINBURGH HOSPITALS POLICY

IN his inaugural address last week as the new occupant of the chair of medicine, Prof. L. S. P. Davidson stressed the need for a coördinated hospital policy for Edinburgh. He pointed out that in order to increase the facilities for clinical instruction the University of Edinburgh and the municipal authorities had entered into an agreement for the development of the municipal hospitals as teaching centres. This would be greatly accelerated if a joint scheme could be agreed on by the voluntary and municipal hospitals. Prof. Davidson said that there were two reasons why municipal hospitals were unable to obtain a satisfactory supply of patients. The first was that the general public still associated these hospitals with the old poor-law institutions. The second was that the patients in a municipal hospital had to pay a part or the whole of the cost of maintenance if they were financially able to do so, while in the Royal Infirmary patients paid nothing whatever their means. The decision as to whether a patient was able to pay at a municipal hospital was made through the public health office, sometimes

[2] See *Lancet*, 1937, 2, 97.

with the help of a public assistance officer. This method may be very irritating and is considered degrading by many patients and their relatives. Prof. Davidson suggested that admission to municipal hospitals should be under the control of the medical officer of health alone, and that the question of recovering the cost of maintenance should be investigated by professional almoners after admission. Contributory schemes and organised almoner services, he said, have saved the voluntary hospitals of England, and the time has surely come when the great Scottish institutions will have to follow suit.

IRELAND

(FROM OUR OWN CORRESPONDENT)

THE GOVERNMENT AND THE DUBLIN HOSPITALS

LAST week the Government information bureau, on behalf of the Department of Local Government and Public Health, issued a statement by wireless and the press in reply to a criticism made some days earlier by Prof. Henry Moore in a speech at the Royal College of Surgeons. Dr. Moore had remarked that the Department had nearly £600,000 in bonds (sweepstake funds), but it was impossible to get a penny out of it, even for hospital debts. In reply the Department states:—

"Each year a payment has been made to the voluntary hospitals to meet certified deficits in their accounts. In this connection it might be mentioned that, while the total of the deficits in the first year of payment amounted to approximately £50,000, the claims from hospitals for payments under this head have been increasing steadily from year to year. In the year 1937 they exceeded £100,000. This increase is causing grave concern both to the Hospitals' Commission and the Minister, as the capital required to be set aside to meet these payments lessens the amount available for the provision of new hospitals.

"Up to the end of June the Dublin City hospitals received from sweepstake moneys £2,222,259, of which voluntary hospitals received £2,180,573 and rate-aided hospitals £41,686.

"As regards the four large general hospitals contemplated for Dublin, it was necessary to devise suitable machinery to ensure the admission of poor persons to the hospitals when established. The negotiations in this matter started in May, 1936, and continued until August in the present year, when it was possible to arrive at an agreement with a committee of the hospitals. Although the heads of this agreement have not yet been finally ratified by the hospitals concerned, three of the hospitals are in a position to make preliminary arrangements for the preparation of plans. As regards the fourth hospital, the scheme involves the amalgamation of certain existing hospitals, and the Minister undertook, with the representatives of the hospitals concerned, to promote legislation for the purpose. A bill is being drafted."

Without questioning the accuracy of the statement, it is proper to remark that it is not easy to see why the increasing amount of the deficits should cause such concern to the Minister or his advisers. On the one hand voluntary subscriptions have been diminishing ever since the establishment of the sweepstakes, while at the same time the demand for hospital accommodation has been increasing. On the other, as there is money available in the Minister's hands and destined for the improvement of the hospitals, it is natural and proper that the hospital authorities should endeavour to improve their equipment which was tending to fall behind the needs of the time. If the Minister is satisfied that the money is needed for its legitimate purpose and that there is no extravagancies in administration the actual amount required should not cause him anxiety.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The annual meeting of the president and fellows of the Royal College of Physicians of Ireland was held in the hall of the college on St. Luke's Day. Dr. William Boxwell was re-elected president, this being his second year of office. The following censors were appointed: medicine, Dr. Robert J. Rowlette and Dr. P. T. O'Farrell; midwifery, Dr. O'Donel Browne; medical jurisprudence, Dr. C. J. McSweeney. The president nominated Dr. Rowlette as vice-president. In the evening the annual dinner was held when over a hundred Fellows and their guests attended.

PANEL AND CONTRACT PRACTICE

Protection of Medical Practices in National Emergency

THE British Medical Association's model scheme for protecting the practices of general practitioners undertaking some form of whole-time service in national emergency was criticised at the recent annual meeting of the National Association of Insurance Committees. The objects of the scheme are: (1) to protect the capital value of the absentee doctor's practice, and (2) to ensure that half of the fees received for the treatment of his patients during the period of absence, and for an agreed period thereafter, shall be paid to his legal representative. The scheme provides that in each division of the Association a meeting of all the doctors in the area shal be held to establish a local emergency committee representing the whole medical profession of the area, including representatives of the medical staffs of the local hospitals, municipal and voluntary, and one member nominated by the medical officer of health of the area. The arrangements in regard to insured patients form an important part of the scheme, and it was to these that the criticisms were directed. Under the scheme the absentee doctor's insured patients would be retained on his list during the emergency and for a subsequent period, not less than twelve months, to be determined by the local emergency committee in consultation with the insurance committee, and new patients would be placed on the temporary list of the acting practitioner to whom they applied for treatment, a temporary list being formed for each practitioner. The absentee practitioner would receive half of the fee payable in respect of each insured person on his permanent list, and the other half would be paid into a pool from which the acting doctors would be remunerated in proportion to the number of persons on their temporary lists. The whole of the money payable for drugs and mileage would be paid by the insurance committee to the acting doctors, who would also receive the whole of the capitation fees for the new entrants on their temporary lists. Persons on the temporary list of one doctor would have the right to change to the temporary list of another doctor, and at an agreed date after the emergency to apply to any insurance doctor for acceptance on his ordinary list. The scheme provides for the establishment by

the local emergency committee of a bureau to administer the finance of the scheme in coöperation with the insurance committee and the cost of administration would be a first charge on the bureau's funds.

The provisions of the scheme relating to insured persons were criticised by Mr. A. M. Craig, clerk to the Aberdeen insurance committee. He said that though insurance committees had no concern with arrangements made for private practice, they were very much concerned that proper arrangements should be made for the treatment of insured persons, for whom they had statutory responsibilities. The scheme provided that the insurance committees should do various important things, but they were not to be represented on the local emergency committee, which would consist wholly of doctors. It seemed, indeed, that the insurance committees under the scheme would have no functions except to carry out the behests of the local emergency committee. He said that the Aberdeen insurance committee had resolved that the scheme was unsatisfactory so far as insurance practices were concerned, and that it should be suspended "to en.ble the central departments of health, insurance committees and associations of insurance committees to prepare jointly a scheme for the purpose in view which could be incorporated in and form part of the existing medical benefit regulations."

There seems some force in Mr. Craig's contention that any financial and other modifications of insurance medical practice required in times of national emergency should be the result of agreement between the medical profession and the central and local authorities engaged in the administration of medical benefit, and should be embodied in the regulations governing medical benefit.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM A DOMINION DOCTOR

I

RECENTLY an important German illustrated journal published photographs of black and white children in South Africa, and a white and a black man's dwellings: thin and miserable white children, well-nourished and smiling black; a corrugated shack for the white man's house, a fine brick house for the black's. The black man's house is that of a native doctor with a lucrative practice—one of half a dozen native doctors in the country. For every white family living in a shack there are many hundreds of natives permanently so "housed." The journal does not mention these pertinent facts. The intention is obviously to suggest that the negro threatens the economic prosperity of the white man. Nothing could be further from the truth, as everyone who knows South Africa at all knows all too well. But all is grist that comes to the propagandist's mill, and any lie is justified if it serves the purpose of the moment. The negro is defenceless enough to be a safe object for attack.

* * *

Fashions play a rôle in medicine and hygiene—almost as in women's dress. The older ones among us will remember many vogues. Passing fashions in surgery—'nineties styles—included the numerous operations on the round ligaments for uterine displacements, clitoridectomy, and nephropexy; more recently, tonsillectomy and wholesale tooth extraction have been practised to excess. At the moment the rage is malnutrition. There is a veritable brain storm raging in the minds of some medical men and many laymen in this country about malnutrition, which is spelt in display type in their minds. Committees of laymen, to whom protein and carbohydrate are as mysterious as cabalistic signs, are going about looking up the "submerged" and the school-children in the poorer districts, telephoning doctors and chemists for opinions and panaceas, and generally enjoying themselves hugely and making a fine fuss. It should be all to the good. Perhaps it might even serve some useful purpose. But one is somewhat pessimistic; probably when these people have had their little fun out of it, things will remain much as they are now. No doubt food will be given to a few school-children who don't get it at present, but we shall still be exporting dairy products, maize, and meat, while many will remain on a semi-starvation diet. For the Great God Profit still rules the world.

* * *

When one listens to a really competent teacher, one realises how few medical teachers really do their job efficiently. The other evening we heard a lecture by a neurologist, a teacher in one of the American medical schools. It was a revelation in scope and method. Not only was every point clearly and concisely stated and explained, but every sign of the many pathological conditions, and of attempts to simulate these made by malingerers, was acted so realistically that a clear mental picture of all these must have been carried away by everyone present. How different from the methods of most teachers whose efforts in describing clinical signs make practically no impression on the students, beyond inducing somnolence. Many of us question the value of the didactic lecture in medical undergraduate teaching. It must be admitted that many of these, as generally delivered, are of little if any value in clinical subjects. But one realises when listening to a real expert in the art of exposition how such a lecture can be made much more valuable than any book reading, or even the type of ward experience which falls to the lot of the average student.

* * *

So far as I know, South Africa is the first British Dominion to have introduced legal qualifications for medical "Specialists." A recent regulation provides that practitioners desiring to practise as "Specialists" must satisfy certain conditions as to training and experience prescribed by the Medical Council. The Medical Association has advocated such legislation for some years, and it is probably because of this that the regulations have been promulgated. The qualifications are certainly not onerous; some will say they do not go far enough. But the first step—which is always the most difficult—has been taken, and it may be anticipated that there will be a tightening up in due time. Only the incompetent can quarrel with the regulations; most competent and

thoughtful practitioners welcome them. It does seem wrong from every reasonable point of view that any Tom, Dick, or Harry should be able to constitute himself a "specialist" solely by his own free and untrammelled volition.

* * *

Many of our medical men go overseas for post-graduate study with a view to specialising; some—usually the leading men—to acquaint themselves with the most recent developments in whatever subject interests them, to see the masters at work and to make contacts with men working in the same field. Most of our senior men are graduates of London and Scottish schools. Yet more and more of those who have already established a reputation and want to see what the leaders are doing and thinking overseas tend to go to the Continent or America. It was most enlightening to hear why from a few who have returned recently from such a pilgrimage, which included England, Scotland, and the United States. All declared they would never again bother to go to Great Britain unless conditions and the attitude of the men in the great hospitals changed radically. This is what they say: "In America we were welcomed with friendliness. The leaders of the profession went to no end of trouble to arrange for us to see everything we wished to see. We were treated as honoured and welcome colleagues and guests. No one was too busy to help us and show us about. In London and Scotland we were made to feel, perhaps quite unintentionally, that the overworked hosts had no time to give us. At best we felt that we were just tolerated with assumed good grace; certainly we were not welcomed."

On the other hand, the young men who go over for a year or two to get a higher qualification are quite satisfied with the treatment they receive and the facilities offered in London.

It seems a great pity for many reasons, not the least of these being the tenuous and almost snapping tie which binds the profession of this Dominion to the profession in Great Britain, that a number of locally influential leaders of our profession, most of them teachers in our medical schools, should carry away so unfortunate an impression. The arguments that the first consideration of the teachers in London and Scottish hospitals must be given to the students, that these teachers are very overworked, that there is the British Postgraduate Medical School and the Fellowship of Medicine, are valid, but only up to a point. All these arguments also hold good for America, yet . . . a very great pity.

* * *

Meetings of medical societies should, at least in theory, serve to bring to the busy practitioner information of practical value to him. It should be possible to present recent advances, experience obtained by colleagues with methods of diagnosis and treatment, information regarding procedures carried out by research workers, and so forth. It has been said often enough, however, that actually these meetings help the practitioner very little, if at all. The specialists are accused of dominating and of using them to direct attention to their own special skill and knowledge. The less scrupulous critics call it advertising. Officers and councils of societies are blamed and enjoined to get "practical" programmes, to encourage the G.P. to read papers, and to refuse papers from specialists when these deal with abstruse and rare conditions.

I have known many councils who have tried to meet these demands. They succeeded in arranging a few such practical meetings by dint of begging people to contribute papers and bring up cases. The people who urged the "reforms" were the ones who often not only would not help in the arrangements but even absented themselves from the very meetings they so ardently desired. The specialists had to be brought in again. I don't know in how far this is true in Great Britain, but in our parts the G.P. generally grouses about the local association being controlled and run by the specialists, who are alleged not to know much, or indeed anything, of the trials, tribulations, and needs of the G.P., whose interests are therefore neglected if not deliberately (some say *deliberately*) then through ignorance and unconcern.

Time and again at council nominations and elections have the G.P.s been urged to nominate and elect their fellows. A few are nominated; a very few, sometimes none, are elected. The G.P. votes dominate the specialists' in the proportion of about 20 to 1 in the large cities and 100 to 0 in the country. One speculates in vain as to why the voting should never effectively support the grumbles.

PARLIAMENT

NOTES ON CURRENT TOPICS

Social Services and Economy

ANSWERING a question that has been in many people's minds during the recess, Mr. WALTER ELLIOT, Minister of Health, said the Government had no thought of cutting the social services. In reply to Mr. LYONS he explained that local authorities had been requested to prepare and submit to him programmes covering the next five years, so as to secure that new capital expenditure was carefully planned and entered into with due regard to the general economic circumstances, as well as the financial position of the local authority concerned. These reports, he said, had been somewhat delayed by recent events but were now being received. The level of the rates was primarily a matter for the local authorities themselves. Although in many areas increases had recently been made the general level remains below that of a few years ago. The assurance was given in the following words:

Mr. H. MORRISON: Will the rt. hon. gentleman give the House an assurance that he does not contemplate the cutting and reduction of the social services?

Mr. ELLIOT: I am glad to have this opportunity of doing that. The rt. hon. gentleman has not seen to-day's newspapers. So far from thinking of cutting the social services the Government hope to maintain them and if possible expand them.

Mr. Elliot was referring to a message he sent to a candidate at a recent by-election in which he argued that "inroads upon the social services would injure the very things we are fighting to preserve; it was to prevent the possibility of such inroads that I urged . . . the policy of appeasement."

QUESTION TIME

TUESDAY, NOV. 1ST

A.R.P. and Evacuation Schemes

Mr. LLOYD (Under Secretary, Home Office), replying to Mr. Simmonds, said that action had already been taken on the report of the Anderson Committee on Evacuation, both in the light of the recommendations in the report and of the experience gained during the recent emergency, to examine and prepare in detail evacuation schemes. Steps had been taken before the recent emergency to have ready schemes such as could be operated at once if there were no time for lengthy preparation. Information was given in the press about such a scheme which had been prepared for London. It was, however, fully recognised that with time for preparation much could be done to improve such schemes, and the detailed work necessary for this purpose was in progress.

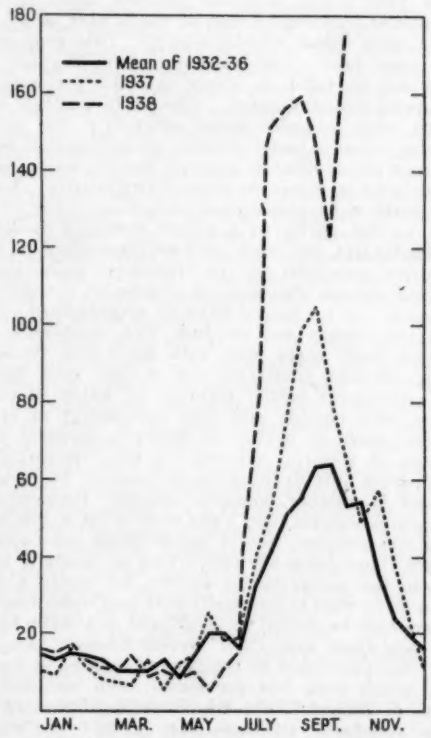
PUBLIC HEALTH

The Incidence of Acute Poliomyelitis

DURING the five years 1932 to 1936 the recorded incidence of acute poliomyelitis in England and Wales, as revealed by the notifications, showed relatively little change. The annual figure lay, roughly, between 500 and 700 cases. Last year, however, the initial autumn rise was of an order to give rise to some uneasiness in view of the previous epidemic prevalence reported from Australia, Sweden, and other parts of the world. For instance, during the week ending Sept. 11th, 1937, 61 cases were notified in England and Wales, the highest number recorded in any one week since the relatively widespread outbreak of 1926–27 (see *Lancet*, 1937, **2**, 1163). Fortunately the subsequent course of events was rather more favourable. Notifications declined week by week from the middle of September and the year's total of 776 cases was not substantially in excess of the figure for 1933 (711 cases). On the other hand, it was distinctly above the level of the previous three years, 1934–36, which had an annual average of a little under 600 cases. Coming to 1938 one finds that the recorded incidence was not seriously abnormal in the first half of the year. It was in the latter half of July that notifications rose abruptly, derived in the first place mainly from north-west Essex. In August a weekly level of some 80 cases was reached, which is slightly above anything previously recorded in this country (standards of diagnosis may, of course, have also risen between 1926 and 1938). This high level was nearly maintained until mid-September, when a distinct decline occurred. This decline, however, was broken in the week ending Oct. 15th, when again about 80 cases were notified in one week. The latest available figure, for the week ending Oct. 22nd, is 81 cases. The fortnightly incidence (including here cases of polio-encephalitis) is shown in the table and diagram below, where it is compared with the corresponding average figures for 1932–36 inclusive and for 1937. In all, 1068 cases of acute poliomyelitis have been reported in 1938, that is up to Oct. 22nd, and 78 cases of polio-encephalitis. Of these cases 912 have occurred since the beginning of August, an epidemic intensity materially above any figure previously reported in this country.

NUMBER OF NOTIFICATIONS OF POLIOMYELITIS AND POLIO-ENCEPHALITIS IN FORTNIGHTLY PERIODS

Fortnightly period.	Mean figure for 1932–36.	1937.	1938.	Fortnightly period.	Mean figure for 1932–36.	1937.	1938.
1	15	10	16	14	16	19	16
2	13	9	15	15	32	40	70
3	15	16	17	16	40	52	151
4	14	11	13	17	51	69	156
5	13	8	11	18	55	98	159
6	10	7	10	19	63	104	149
7	10	6	14	20	64	79	123
8	10	13	9	21	53	65	174
9	13	5	10	22	54	50	—
10	8	12	9	23	36	57	—
11	14	14	10	24	24	39	—
12	20	25	5	25	20	24	—
13	20	18	11	26	16	11	—



Number of notifications of poliomyelitis and polio-encephalitis in fortnightly periods.

A seasonal decline is, on the basis of past experience, clearly to be expected shortly, but it may be noted that in the epidemic of 1926 the figures still remained well above normal until the beginning of December. In that year notifications of acute poliomyelitis numbered 1159 so that the 1938 total is virtually certain to be in excess of the 1926 record. Judging, too, by the course of events in 1926–27 it would be optimistic to hope for a speedy return to the customary low levels. The substantial rise that took place in the third quarter of 1926 was certainly continued through 1927—at a lower point of course—and probably as far as the first quarter of 1928. The present wide distribution of the disease may therefore take a considerable time to quieten down, though the erratic course of the disease in epidemic form may just as easily confound any prophet. Its recrudescence is not confined to this country. The weekly epidemiological reports of the Health Section of the League of Nations show that an abnormally high incidence has prevailed in the last few weeks in Germany, the Netherlands, and Hungary. Sweden shows only a small increase above normal, while in the United States the incidence has been very low following the epidemic prevalence of 1937.

Unsatisfactory Foods and Drugs

In 1937 public analysts reported upon 151,370 samples of foods and drugs, of which 8401, or 5·5 per cent., were found unsatisfactory.[1] This proportion has been fairly stationary for several years. It must not be taken to imply that 5·5 per cent. of our foods are adulterated. The public analysts only report upon samples taken officially; the actual number taken is vastly greater, official samples being taken, with a view to possible further action, only when there is reason to suspect irregularity. Little adulteration or sophistication is practised to-day. This may be due partly to a higher standard of ethics among traders, but more rigorous inspection, the risk of severe penalties, and the fact that sophisticants are little cheaper than genuine articles are not without influence. It no longer pays to manufacture coffee beans of chicory and sawdust, and raspberries are cheaper than apple pulp with hand-made wooden seeds. Modern adulteration is of four main kinds. The commonest is the addition of water to milk, spirits, and vinegar and (less commonly) to other articles, such as butter, in which a specified percentage of water is allowed by law. Removal of cream from milk to bring the fat content below that allowed is another common offence. Formerly, if milk contained less than 3 per cent. of fat it was held to be not genuine, but of recent years an "appeal to cow" has been allowed. This is rather a bugbear to the public health service, for surely a cow which gives what is essentially milk and water instead of pure milk ought not to be allowed in a milch herd. Last year there were 1327 "appeal to cow" samples —i.e., samples taken at the time of milking at farms from which milk has previously been sampled in course of transit to the consumer and found to be below standard. Of these 434, or 32·7 per cent., were reported to be below the presumptive standard of the Sale of Milk Regulations 1901. Of the other samples (81,030), 5673, or 7 per cent., were adulterated or not up to standard. The use of cream substitutes in place of real cream, especially in confectionery, is a practice introduced in modern times, but seems to be less often attempted than it was a few years ago. Other common tampering with foods is the addition of preservatives which are not allowed, or of an excessive amount of those which are allowed; preservatives are sometimes used in foods which may not be sold except in pure form and concealed in others where their addition is legitimate only when their presence is disclosed. Substitution of margarine for butter is not now common. Of the 7445 samples of butter analysed last year only 11 consisted wholly or partially of margarine. Bread and margarine is still sometimes sold as bread and butter in eating-houses. Diseased, decayed, or unsound food comes under a different Act. Tinned provisions are sometimes contaminated with tin or lead, and arsenic may crop up in unexpected places, notably in sweets or beer. Carelessness and accidents are liable to lead to nearly as much trouble as is malicious sophistication. In 1936 one purchaser got pure coffee in place of chicory and another very nearly got white arsenic in place of icing sugar. The drugs most frequently found below standard are camphorated oil, mercury ointments, tincture of iodine, and ammoniated tincture of quinine. On the whole there is little adulteration practised in this country to-day and the administration of the Sale of Foods and Drugs Acts is one of the most satisfactory departments of our public health services.

[1] Sale of Foods and Drugs. Extracts from the Annual Report of the Ministry of Health for 1937–38, and Abstract of Reports of Public Analysts for the year 1937. H.M. Stationery Office. Pp. 17. 4d.

Ice-cream

Hove corporation is anxious that a fixed standard may be adopted in regard to ice-cream. Its public health committee has reported that 8 of 17 samples taken during July and August were unsatisfactory, and further, that during 1937, 53 per cent. of samples were similarly unsatisfactory as against 36 per cent. in 1936. This percentage has in fact been increasing every year. On several occasions the corporation has drawn the attention of the Ministry of Health to the matter, and has asked that a standard of bacteriological cleanliness might be introduced so that action could be taken in cases where the cream is not actually unfit for human consumption. At Hove the standard which has provisionally been adopted is that of pasteurised milk, and that this is not an impossible one is shown by the fact that it has been reached by many retailers in the town. At a recent meeting of the corporation Dr. N. E. Chadwick, the medical officer of health, advocated the licensing of premises and producers of ice-cream in the same way as with milk, with power to remove the licence in the event of samples being unsatisfactory. The corporation is invoking the aid of the Association of Municipal Corporations to bring the subject before the notice of the Ministry of Health.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 22ND, 1938

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1864; diphtheria, 1367; enteric fever, 37 (43 "expected"); pneumonia (primary or influenzal), 534; puerperal pyrexia, 159; cerebro-spinal fever, 19; acute poliomyelitis, 81; acute polio-encephalitis, 7; encephalitis lethargica, 3; dysentery, 35; ophthalmia neonatorum, 97. No case of cholera, plague, or typhus fever was notified during the week.

The incidence of poliomyelitis is again slightly on the rise, the combined notifications of acute poliomyelitis and acute polio-encephalitis being as follows for the current week and the previous thirteen weeks (working backwards): 88, 85, 68, 56, 63, 83, 76, 82, 76, 83, 87, 63, 41, 29.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 28th was 2877, which included: Scarlet fever, 759; diphtheria, 1046 (carriers, 17); measles, 8; whooping-cough, 249; puerperal fever, 18 mothers (plus 11 babies); encephalitis lethargica, 272; poliomyelitis, 10. At St. Margaret's Hospital there were 22 babies (plus 18 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from small-pox, 1 (1) from enteric fever, 2 (0) from measles, 4 (0) from scarlet fever, 4 (1) from whooping-cough, 17 (2) from diphtheria, 51 (8) from diarrhœa and enteritis under two years, and 26 (1) from influenza. The figures in parentheses are those for London itself.

Merthyr Tydfil reported the only 2 deaths from measles. Fatal cases of diphtheria were scattered over 15 great towns, 2 at Croydon, no more than one elsewhere. Hull, Middlesbrough, and Birmingham each had 6 deaths from diarrhœa, Leeds 5. Manchester attributed 3 deaths to influenza.

The number of stillbirths notified during the week was 255 (corresponding to a rate of 37 per 1000 total births), including 40 in London.

ROYAL SOCIETY OF ARTS.—On Friday, Dec. 2nd, at 4.30 P.M., Major-General Sir John Megaw, president of the India Office medical board and medical adviser to the Secretary of State for India, will deliver a lecture to this society on pressure of population in India.

CORRESPONDENCE

OXYGEN THERAPY

To the Editor of THE LANCET

SIR,—I have like others read with interest Prof. Christie's account of oxygen therapy in your issue of Oct. 15th, and I should like to make a few comments. The rate of flow of oxygen required for the oxygen tent depends on its air-tightness and in my experience 4 litres a minute to produce a percentage of 40–50 means a leaky tent. With a new tent delivered last June I have found that only 2 litres are required, while with 4½ litres over 80 per cent. was obtained. With the present-day use of "untearable" fabric in the manufacture of tents its damage by patients is less likely and its life should be longer. At Guy's the tents are now looked after by one of the dispensary staff, while the sisters and head nurses of the wards where they are most commonly used lend a hand in other wards when necessary. Doubtless at present tents will be used mainly for children and for those adults who are very ill, or when for some reason a particularly high percentage of oxygen is desired.

Of the other methods, the greater the variety that are available the better, in order to suit the preference of the patient, though I think the single No. 9 catheter might now be discarded. Prof. Christie's nasal mask should be a valuable addition. I find that Argyll Campbell's face tent and the forked nasal tube are both satisfactory and unlike Prof. Christie I have had no difficulty in keeping the latter in position. I use bent metal tubes of ¼ in. diameter which are connected to the flow-meter through a Y piece by a tube that is tied to a light cap over the patient's head; this is Bullowa's method. Prof. Christie is surprised that T. W. Adams and I found that the forked nasal tube was rather more efficient than the nasal catheter; but with the former the oxygen is delivered into both nostrils, with the latter into one.

One other important point. I believe that the stream of oxygen should issue from the tubes at low pressure—e.g., under 1 in. of water; this is necessary if they are used with the inexpensive flow-meter and humidifier I have described elsewhere.[1] If the pressure is high there will be a jet of oxygen impinging on the mucous membrane, and this may perhaps cause the irritation described by Prof. Christie. I wonder too whether the headaches noted by Dr. Marriott and Dr. Robson in your correspondence columns may not be due to this cause since with the use of narrow Dunlop valve-tubing the pressure of oxygen is high. In this case they would not be prevented by using the spectacle-frame attachment instead of the band round the forehead. I hope we shall hear of further observations on this point. I am, Sir, yours faithfully,

London, W., Oct. 31st. E. P. POULTON.

A NEW REMEDY FOR EPILEPSY?

To the Editor of THE LANCET

SIR,—It is curious how certain methods of treating disease run in cycles. Remedies are recommended, found ineffective or harmful, or perhaps misused, and therefore abandoned. Years later somebody rediscovers the treatment and it is launched once again on its experimental and clinical trials, past experience having been forgotten or neglected.

From an annotation in your issue of Oct. 22nd, it looks as if something of this nature is happening in regard to epilepsy. The "new" remedy here is sodium diphenyl hydantoinate, a close derivative of Nirvanol (phenyl ethyl-hydantoin). Nirvanol, now better known in connexion with the therapeutics of chorea, was used in the treatment of epilepsy twenty years ago on the Continent. Its toxic properties were recognised and the rash, pyrexia, and other symptoms it produced were described as a characteristic reaction and incidentally often found successful in terminating chorea. The literature of the last two decades also recounts the more dangerous complications that may ensue, particularly with too liberal dosage. The treatment therefore gradually fell out of favour in epilepsy and it has not had wide approval in the therapy of chorea.

It is clear that the hydantoin group of drugs is not a new remedy and undoubtedly its revival will produce a number of alarming cases of poisoning, if not occasional fatalities. Those who intend to try its effect in comparatively large and prolonged doses in epilepsy should bear in mind the possible unpleasant effect even when the drug is administered cautiously over a definitely restricted period in chorea. These complications are fully described by Poynton and myself in a special chapter in "Recent Advances in the Study of Rheumatism" and, although we distinctly favour the drug in chorea under certain circumstances, we make it quite clear that we are fully alive to its possible dangers.

I am, Sir, yours faithfully,

BERNARD SCHLESINGER.

Portland-place, W., Oct. 27th.

PAINFUL CRAMP IN OPERATION STUMP

To the Editor of THE LANCET

SIR,—The case observed by F. Romer (*Lancet*, Sept. 17th, p. 699) seems to be a typical stump-neuralgia. That kind of neuralgia was first observed by Ambroise Paré and described by Charcot. Recently Prof. R. Leriche has insisted on the part played by the sympathetic system in its ætiology; classic authors generally suggest that it might be due to a neuroma. In April, 1938, I reported on a similar case which was much improved by subcutaneous injection of vitamin B_1. I have had since the opportunity of treating several other patients, with excellent results. This is most interesting, as vitamin B_1 is quite devoid of toxicity. My first results are summarised in a brief report at the XXV° Congrès Français de Médecine, and I am still investigating the question. I am, Sir, yours faithfully,

Paris, Oct. 29th. A. SLIOSBERG.

URINARY INFECTIONS AND THE BED-PAN

To the Editor of THE LANCET

SIR,—Dr. J. C. Cuthbert's valuable article on puerperal urinary infections, published in your issue of Sept. 24th, contains the statement: "Of the 352 patients admitted to Queen Charlotte's Isolation Hospital during 1937 with a diagnosis of puerperal fever or puerperal pyrexia, 119—i.e., 34 per cent. of the total—were found to have a urinary tract infection either on admission or at some time during their stay in hospital. A most striking feature of this series was the infrequency of symptoms or signs pointing to involvement of the urinary tract" (they were absent in 78 out of 119 cases—i.e., in 66 per cent.).

[1] Oxygen and Carbon Dioxide Therapy. By Argyll Campbell and E. P. Poulton, 1934, p.194. See also *Brit. med. J.* 1937, **1**, 1113.

I have found the bladder infected on several occasions in young females with pyrexia of unknown origin, a catheter specimen of urine growing *B. coli* alone or with *Streptococcus fæcalis*, and I have noticed that this infection has arisen some time after the girl has been in bed at home with some other definite illness. As the question of trauma does not arise in schoolgirls, one must think of an alternative cause. Ascending infection via the urethra would seem the most likely, the bed-pan position and/or the faulty use of latrine paper may well account for most of them. For this reason, and because the position on the bed-pan is physiologically unsound, I have for some years forbidden the use of the bed-pan except in cases where the horizontal position must be maintained at all cost. I have also instructed the school matrons to speak to each girl about the right direction-of-use of the latrine paper.

In a hospital ward, where there are many patients, the bed-pan for bed patients is, I am afraid, the only practicable proposition.

I am, Sir, yours faithfully,

Battle, Oct. 27th H. ANGELL LANE.

INDUCED HYPERCALCÆMIA

To the Editor of THE LANCET

SIR,—In your issue of Sept. 10th Dr. Martin Cuthbert describes the beneficent effects of experimental hypercalcæmia on the excessive psychomotor activity of psychotic patients in his care. He achieved hypercalcæmia by several methods in several combinations: the exhibition of calcium lactate, vitamin D, and ammonium chloride, and the injection of Parathormone. It is hardly surprising that he found the parathormone unnecessary except in emergency, for a rise in serum calcium can readily be obtained with vitamin D alone, provided that adequate calcium is present in the diet. Moreover, as Dr. Cuthbert found, tolerance to parathormone develops soon.

May I suggest that where adequate arrangements can be made for frequent determinations of serum calcium, a useful simplification could be produced by the oral use of A.T.10? Provided that the diet contains sufficient calcium, a slowly produced but long-lasting hypercalcæmia can be obtained, and maintained on small doses, without hormone therapy or other adjuvants.

I am, Sir, yours faithfully,

RAYMOND GREENE.

Upper Wimpole-street, W., Oct. 28th.

SEVERE INITIAL DEAFNESS AS A SIGN OF ACUTE MASTOIDITIS

To the Editor of THE LANCET

SIR,—Mr. Asherson writing in your issue of Oct. 22nd reports three cases of mastoid osteitis associated with a stealthy onset, extensive bone necrosis, and extreme deafness. Unfortunately there is no information concerning the bacteriological findings. Although, of course, this combination of circumstances may not be the prerogative of only one type of organism, Mr. Asherson must be aware that it is extremely characteristic of infection with the *Streptococcus mucosus*. The severity of the deafness in this type of infection has been noted and stressed in continental literature for a number of years and an admirable exposition of the subject by I. Vitenson appeared in the *British Medical Journal* of April 15th, 1933.

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 29th. MICHAEL VLASTO.

SCOTTISH REPORT ON NURSING CONDITIONS

A Scottish Departmental Committee on Nursing reported in January, 1936, on the training and registration of nurses in Scotland, and in November, 1937, the available members of the committee were reappointed, under the same chairman (Lord Alness), to inquire into problems of recruitment and terms and conditions of service. They now report[1] that except in regard to nursing-homes and coöperations from whom the response (both of employers and employed) to an invitation to give evidence was meagre, they are satisfied with the range of their inquiry. It is noted that in 20 hospitals where records have been kept the total number applying for training every year has steadily decreased during the last five years from 4242 in 1933 to 2349 in 1937; and that in 9 hospitals giving records for ten years the total number of candidates, which rose during the period of the industrial slump to reach nearly 3000 in 1932, fell again until in 1937 it was only 1466 as against 1860 in 1928.

Important new suggestions for combating the shortage and for improving the conditions of service include: (1) The recognition of suitable hospitals, among those which are not approved as training schools by the General Nursing Council for Scotland, as "educational institutions" where probationers can be prepared for the first part of the divided preliminary State examination. (The committee do not hold that non-approved hospitals should be staffed only by trained nurses.) (2) The recommendation that all nurses while on holiday should receive subsistence allowance of at least £1 a week. (3) The assessment of emoluments for superannuation purposes in voluntary hospitals at a figure bearing a more true relation to their actual value than the present one of £50 to £70 a year.

The other recommendations are largely in accord with those of THE LANCET Commission on Nursing, with some additions and extensions which the increasing gravity of the situation in the last seven years has made appropriate. Special emphasis is laid on the need for universal and interchangeable pensions for nurses and a valuable memorandum by the Government actuary discusses four devices securing this, of which one, the "cold storage" method, appears to him the most helpful line of approach to the problem.

The evidence given to the committee shows that in many hospitals nurses still do not know their daily off-duty times in advance; that domestic work such as scrubbing lockers and polishing brasses may still be expected not only of third- and fourth-year nurses, but of those taking a second training in their sixth and seventh years; that even now often only half an hour is allowed for the midday meal; and that nurses have still to submit in many places to unnecessary restrictions to which attention has been called over and over again. The committee welcome the appointment of ward orderlies to relieve nurses from routine domestic duties but deprecate any formal recognition of a lower grade of nurses as likely to lower the status of the profession and to intensify the competition which registered nurses have to meet from untrained or partially trained women. In recommending a 96 hours' fortnight, exclusive

[1] Report of the Scottish Departmental Committee on Nursing. Cmd. 5866. H.M. Stationery Office. Pp. 48. 9d.

of meals but inclusive of lectures, they call attention to a highly undesirable practice which obtains in some hospitals of having the day theatre staff on call for night duty.

On the "ground of expediency from the recruiting point of view" they recommend that the probationer's commencing salary should be raised to a sum that will make her self-supporting from the outset (about £30 a year is suggested) and that uniform should be provided in addition.

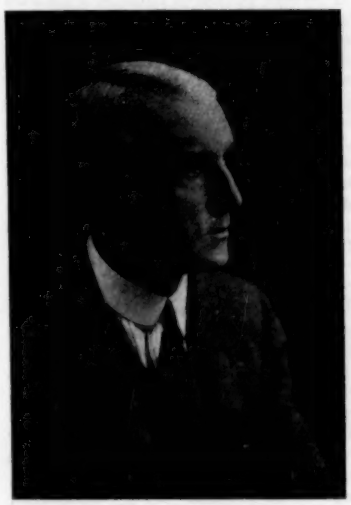
The committee recognise that to carry out their recommendations would involve a heavy financial burden for the voluntary hospitals, and they recommend State subsidies for the training of nurses, supplemented if necessary by further grants to ensure improvement in conditions of service.

OBITUARY

SIR ROBERT JOHNSTONE, M.B. R.U.I., F.R.C.S., F.C.O.G.

AFTER a long and trying illness Sir Robert Johnstone, professor of gynæcology at the Queen's University, Belfast, and representative of the University in the Northern Ireland Parliament, died at his home at Newcastle, co. Down, on Oct. 26th, at the age of 66. A surgeon of distinction, he had played a leading part in both professorial and public affairs in Ulster.

Robert James Johnstone was a son of Charles Johnstone of Greenisland, co. Antrim, and was born there in 1872. He received his early education at the Belfast Royal Academical Institution, of which he was ultimately to become chairman of governors, and he studied medicine at what was then Queen's College. As an undergraduate he showed promise of his later brilliant career, gaining scholarships in literature and in medical subjects, and later the Dunville studentship. He took honours in his M.B. examination in 1896. After qualification he held house appointments and demonstratorships of anatomy and pathology at Belfast and spent a year studying in London and Vienna. On his return to Belfast he became clinical assistant to Sir John Byers, at that time professor of gynæcology. He obtained his F.R.C.S. in 1900, and in the next two years was appointed assistant gynæcologist at the Royal Victoria Hospital and surgeon to the Belfast Maternity Hospital. Between this time and his succession to the chair of gynæcology at the university in 1921 Johnstone was active in the service of the British Medical Association, being chairman of its Irish committee and hospitals committee, secretary and then vice-president of the section of obstetrics and gynæcology, a member of the council from 1909, and secretary and later president of the Ulster branch. He also found time to contribute to the medical journals and to Whitla's Dictionary of Treatment, and in lighter vein he wrote verse characterised by a wholly delightful humour and crystal clearness. During the war he served as surgeon to the Ulster Volunteer Force Hospital. He was elected to the Northern Ireland Parliament on its establishment in 1921 and in administration his mental grasp, sense of fair play, and capacity for inspiring loyalty and affection in his colleagues proved invaluable. In politics his interests naturally lay in matters dealing with health, education, and the welfare of the university. He was a member of the Lynn Committee on Education, which resulted in the Education Act of 1923, and chairman of the Commission on Local Government and Public Health, and in 1927 he was elected to the General Medical Council. His scholarship (his private tutor had been an old unworldly man steeped in the classics) was in constant request in the framing of resolutions. When the new Royal Maternity Hospital was opened in 1931 he became its first chairman and his continued interest in the welfare of the hospital is commemorated in the Johnstone wing opened last June. In 1937, when the British Medical Association met at Belfast, Johnstone was elected president of the association and in the last New Year honours he received a knighthood. Ill health compelled him to give up active practice eighteen months ago.



[*Chas. H. Halliday*

Several of Johnstone's colleagues have enabled us to give this brief but illuminating sketch of his professional life; it would be incomplete without a few sentences from their more intimate words. "His success as a surgeon was based on a sound knowledge of anatomy and pathology, and physically he combined great strength of arm with an accurate and gentle touch. In his teaching he aimed at infusing into his students the desire to know the why and wherefore, and he maintained always an intimate contact with his old students and a real interest in their progress. He has left behind a name for kindliness, skill, and high endeavour that will not fade."

In 1906 he married Florence, the daughter of the Rev. G. Magill, former minister of Cliftonville Presbyterian Church, and his career owed much to the smooth happiness of his married life. He had no children.

OSWALD KENTISH WRIGHT, M.B. Camb., D.P.H.

Dr. Kentish Wright who died suddenly on Oct. 25th had been attached since 1922 to the medical intelligence department of the Ministry of Health, and in recent years had been responsible for its direction. This implied an alert readiness to supply at short notice information on all sorts of unusual subjects to his colleagues within and without the Ministry and to the public. All who had occasion to apply to his department were impressed not only with his willingness but with his ability to find prompt answers to difficult questions. He had an ingenious mind and an unusual ability to explain to those unfamiliar with any subject the essential ideas which lay behind new schemes or plans.

Oswald Kentish Wright was born at Nottingham in 1881, the son of John Kentish Wright, a well-known solicitor in that town. He was educated at Sedbergh School and at Christ's College, Cambridge,

where he won an open scholarship in mathematics in 1900. After taking his degree he decided to study medicine and qualified from the London Hospital in 1907. His first professional appointment was that of R.M.O. to the Newport and Monmouthshire Hospital. He then became assistant and deputy medical officer of health for Nottingham, acting also as resident at the City Isolation Hospital. He took his M.B. Camb. and the D.P.H. in 1910, and two years after started private practice at Holt, Norfolk, where he obtained valuable experience as medical officer to Gresham's School. During the whole of the late war he served in the R.A.M.C. and on demobilisation felt disinclined to resume general practice. His special interest was in public health and his appointment in 1919 as assistant lecturer in hygiene with charge of the bacteriological laboratory at King's College for Women (Household and Social Science Department) enabled him to develop it on scientific lines, for his teaching duties left him enough time to work at related bacteriological problems. He was a popular teacher and had made many friends among his colleagues when in 1920 he left the college on his appointment to the staff of the Ministry of Health as an assistant bacteriologist. The next year he was transferred to the Government Lymph Establishment, Hendon, but came back to Whitehall in 1922 to take up the congenial task of keeping the profession and the public informed of the directions in which the work of the Ministry was being extended. One of his colleagues testifies to his modesty, shrewdness, and to the affection and respect which he earned by his genial efficiency. When the Central Council for Health Education was formed, Dr. Kentish Wright was appointed as the representative thereon of the Ministry of Health. He took up this work with great enthusiasm and was a most useful member of the council, serving on a number of its committees.

Dr. Kentish Wright married Winifred, daughter of Thomas Orpwood, who survives him with one son.

Dr. M. T. Morgan writes: "Kentish Wright and I started together at the Ministry of Health and occupied adjoining desks in the medical library. I soon became and have remained ever since a close friend of his. He was a delightful companion and it is impossible to imagine that he had a single enemy. On the other hand, he had a wide circle of friends to whom his house on the Island of Caversham Weir on the Thames was always open. International health owes a great debt of gratitude to Kentish Wright, for it was he who by his patient industry developed and brought to its present efficiency the weekly record of epidemic disease obtained by international notification and from consular information throughout the world. It is pleasant to think that the Ministry's weekly record will remain a testimony and a tribute to his constant industry."

THE LATE PROF. L. S. DUDGEON

WE received this tribute from Prof. H. R. Dean just too late for inclusion in the notice published last week.

"Dudgeon was a good pathologist and a good physician and he realised very clearly the limitations as well as the value of laboratory methods. When, thirty-five years ago, he came back to St. Thomas's Hospital and to what was to become his life's work, the then small clinical laboratory became the scene of a new and vigorous activity and a centre where elder people desirous of hearing something of the newer laboratory methods met younger ones trying to put them into practice. For the post of clerk in the clinical laboratory there was keen competition and the fortunate few began their labours daily 'at ten o'clock, not at five minutes to ten or at ten minutes past but at ten o'clock.' Beginners were required to clean and polish coverslips and were allowed to work off superfluous energy by turning the handle of a monstrous centrifuge which shrieked pleasantly as its maximum speed was attained. More advanced pupils accompanied the director to the wards and were initiated into the mysteries of blood counts and blood cultures. In the daily work of the laboratory the highest possible standard of accuracy was expected from everybody. No sort of carelessness was tolerated and deliberate modifications of official methods were seldom approved. Many acquired within a few months a manual dexterity which has served them well in after years, and there can have been few who failed to benefit by a discipline of which accuracy alike in method and observation was an essential constituent. Encouragement and reproof were administered freely with a humour which was very characteristic and in words which were long remembered. At one o'clock the morning shift of clerks retired and Dudgeon spent a lunchless interval at his microscope or in writing reports. A second period of routine work and peripatetic instruction was followed by tea in the staff-room, the first interval in the day's work. After tea research work began and specially favoured persons arrived to take part in whatever investigation might be in progress. Dinner, sometimes very late, was often followed by another session, and midnight saw Dudgeon and a few friends hurry across a long and deserted Westminster Bridge to catch the last train home. The week-ends were devoted to golf which, as played by us in those days, was more vigorous than skilful, for as on working days of the week Dudgeon allowed himself but little repose.

"We who were young with Dudgeon at St. Thomas's have many happy recollections of days busily and happily spent. He was not much older than his first pupils and during the first decade of this century he was an elder brother to a number of young men who passed through the clinical laboratory and College House at St. Thomas's. His influence on his contemporaries and immediate juniors was effected in part by the example of his own work, in part by a character diversified by traits, eccentricities, and even little faults which endeared him to all who knew him well. In his work he was most precise. Every specimen, however trivial, however common, was submitted to an examination in which a rigidly careful technique was followed by a most conscientious scrutiny. In forming an opinion Dudgeon spared neither time nor pains; but that opinion, once formed, was seldom if ever changed. His technical skill, wide experience, and sound judgment made the opinion valuable to his colleagues and it lost nothing from the conviction with which it was expressed. He was a good teacher not only because he was a good pathologist but because he had very clearly cut ideas as to what was important and what was not. His teaching was plain, simple, and easy to understand. He liked plain and straight answers from his pupils and disliked evasion or any attempt to conceal ignorance. Of new ideas he was often suspicious, especially when they made their first appearance in a foreign language, and he would not adopt a new method until it had received a full trial at his own hands. With individuals he was candid and direct. He had little use for half measures and he did not like everybody, but to his friends, and he had many, he was loyal and wonderfully generous. We, who knew him well, loved him well and our memories of early days in medicine are the happier for him."

MEDICAL NEWS

Royal College of Physicians of London

At the quarterly comitia of the college on Oct. 27th, with Dr. Robert Hutchison, the president, in the chair, Dr. C. M. Hinds Howell, Dr. A. C. D. Firth, Dr. F. E. Tylecote, and Dr. Bernard Hart were elected councillors. The following fellows were elected to represent the college: Dr. H. L. Tidy on the committee of management of the Conjoint Board; Sir Comyns Berkeley on the council of the Central Midwives Board; Dr. John Hay on the court of governors of the University of Liverpool; Sir Stanley Woodwark on the Central Council for District Nursing; Sir Arthur MacNalty on the executive committee of the Imperial Cancer Research Fund; and Dr. R. D. Gillespie at the conference of the National Council for Mental Hygiene.

The president announced that Dr. R. E. Smith had been appointed Milroy lecturer for 1940, and that his subject would be acute infectious diseases at school; that the Jenks memorial scholarship had been awarded to J. V. Aveling, late of Epsom College; and that the first awards of the Linacre scholarships, recently instituted by the College, had been made to G. M. Scott and T. Stapleton, late of King's School, Canterbury.

The following candidates were admitted to the membership of the college:—

Margaret Ball, M.B. Camb., Reginald Bolton, M.B. Lond., William Gordon Brander, M.B. Camb., Douglas Gordon Freshwater, M.B. Camb., Douglas Montagu Temple Gairdner, M.B. Oxon., Michael Gelfand, M.B. Capetown, Francis Temple Grey, M.B. Sydney, James Denis Hardy, M.D. Belf., Brian Gerard Haynes, M.B. Sydney, Harold Bernard Hunt, M.B. Birm., Nanabhai Framroze Lilauwala, M.B. Bombay, John Douglas Robertson, M.D. St. And., Mohammad Sarwar, M.B. Punjab, and Stephen Robert Ferguson Whittaker, M.B. Camb.

Licences to practise were conferred upon 139 candidates (116 men and 23 women) who have passed the final examination of the Conjoint Board and have complied with the by-laws of the college. The following are the names and medical schools of the successful candidates:—

D. C. Arnott, St. Thos.; Gladys M. Auchinleck, Roy. Free; H. B. Austin, Manch.; J. C. Ballantyne, St. Bart.'s; A. M. Bennett, Charing Cross; W. M. Bennett, Camb. and Manch.; E. S. Binns, West London; M. W. Bird, Camb. and London; A. N. Blades, St. Thos.; F. A. Boggiano, Liverp.; T. W. Branch, Oxon. and London; Mary Brandon-Jones, Univ. Coll.; R. T. Brooks, Halifax R.I.; D. C. Brown, Cardiff; P. A. K. Brownlees, St. Bart.'s; J. F. Buckmaster, Guy's; J. A. Burnett, St. Bart.'s; K. C. Burrow, Oxon. and St. Bart.'s; Abraham Caplin, Univ. Coll.; Phoebe Charlton, Roy. Free; P. S. Cheshire, King's Coll.; M. M. R. Clarke, Cape and Univ. Coll.; Arthur Conachy, Westminster; W. H. R. Cook, Liverp.; Patricia G. Cooper, Roy. Free; C. C. Coplans, Charing Cross; A. W. J. Craft, Guy's; C. M. Craig, St. Bart.'s; E. I. Davis, Camb. and Guy's; W. W. Deane, Westminster; Ursula M. Dick, Roy. Free; Brian Donnelly, Manch.; M. N. S. Duncan, Middlesex; A. R. P. Ellis, Camb. and St. Bart.'s; C. J. Evans, Univ. Coll.; G. M. Evans, St. Mary's; R. W. Evans, London; Margery Feachem, Camb. and Manch.; Thomas Fenwick, Camb. and St. Thos.; E. L. V. Fitch, Univ. Coll. and Liverp.; D. S. Foster, St. Mary's; J. B. Franklin, Guy's; Beryl M. Gee, King's Coll.; R. C. R. Gethen, Middlesex; Janet D. Gimson, Univ. Coll.; Trevor Griffiths, Cardiff; Hilda B. Grinyer, Roy. Free; Hafiz Haggag, St. Bart.'s; N. J. Haggar, Middlesex; N. H. Halper, St. Bart.'s; P. J. Hardie, St. Bart.'s; R. F. E. Harrington, Guy's; J. W. S. Harvey, Guy's; R. J. Healey, Guy's; R. D. Hearn, Camb. and St. Bart.'s; F. D. Hindmash, Durh.; E. R. Hodgson Todd, Guy's; R. O. Holland, Guy's; J. G. S. Holman, Charing Cross; Doris I. E. Huband, Birm.; E. G. Hudson, St. Bart.'s; J. P. W. Hughes, Univ. Coll.; R. D. S. Jack, Camb. and St. Bart.'s; Harris Jackson, Cape and Guy's; Beryl M. Jagger, Birm.; J. D. James, Univ. Coll.; John James, Univ. Coll.; D. H. Jones, St. George's; D. R. M. Jones, London; D. H. Jones, Cardiff; Mair E. Jones, Cardiff; Ruth Jones, West London; T. R. Jones, Guy's; W. A. D. Jones-Roberts, Camb. and St. George's; J. B. Joyce, St. Bart.'s; H. G. Kahlenberg, St. Mary's; F. K. Khosrawy, Bombay; Isabella R. Kratt, Birm.; G. L. Lambert, Charing Cross; L. A. Laventhall, Charing Cross; G. J. Laws, Camb. and Univ. Coll.; Mary I. Leasor, Roy. Free; K. N. Lloyd, London; S. C. MacPherson, Liverp.; W. M. Maidlow, St. Bart.'s; G. L. Manson, Liverp.; F. J. C. Matthews, Guy's; Robert Maycock, St. Bart.'s; Tolly Mendelsohn, St. Mary's; Caroline Milne, Roy. Free and West London; N. E. Monteuuis, Camb. and Middlesex; Christina O. Moody, King's Coll.; G. O. M. Neatby, Camb. and St. Bart.'s; Sylvia D. Orchard, Roy. Free; T. W. B. Osborn, Univ. Coll.; Pearl Pearlman, Roy. Free; H. W. Peck, Westminster; J. F. Perredes, King's Coll.; H. C. Perry, St. Mary's; Blanche Phillips, Cardiff; R. K. Pilcher, Middlesex; Frederick Prescott, Middlesex; R. F. Pusey, Guy's; S. F. Raistrick, Leeds; A. E. Rampling, Manch.; H. N. Rees, St. Bart.'s; L. M. Reid, Camb. and St. Thos.; Nora Reid, King's Coll.; M. O. Richardson, Guy's; S. Roberts, Brist.; S. V. Rush, Middlesex; James Scholefield, Oxon. and King's Coll.; C. A. R. Schulenburg, Capetown; Ida B. S. Scudder, Pennsylvania; C. C. Shaw, Camb. and Middlesex; Philip Shemilt, St. Thos.; L. G. P. Shiers, Cardiff; M. M. Shrinagesh, Camb. and St. Bart.'s; Margaret E. M. Slater, Brist.; H. S. C. Smith, Middlesex; E. F. G. Stewart, St. Bart.'s; T. L. Stoate, Camb. and Westminster; Hugh Stott, Camb. and Guy's; W. J. Street, Charing Cross; Max Taylor, St. Mary's; K. R. Thomas, Cardiff; M. R. Tomlinson, Manch.; J. D. Wade, Camb. and Univ. Coll.; R. T. Warren, Oxon. and Middlesex; E. H. S. Weston, London; F. B. B. Weston, Charing Cross; J. B. Wheelwright, St. Bart.'s; Jerry Whitehead, Manch. and West London; Gladys E. Wiese, Roy. Free; A. A. Williams, Cardiff; G. H. T. Williams, Sheff.; W. W. Wilson, Manch.; R. L. Witney, Camb. and St. Thos.; and Joseph Zigmond, Cardiff.

Diplomas in child health were conferred on the candidates named in our report of the meeting of the Royal College of Surgeons of England (Oct. 22nd, p. 978). Diplomas in public health were also conferred jointly with the Royal College of Surgeons on the following candidates:—

Banbihari Adak, Joan Butterworth, M. A. K. Durrani, A. B. R. Finn, Lorna M. A. Goulden-Bach, R. D. Gray, A. B. Guild, F. C. Hilton-Sergeant, C. W. C. Karran, H. D. Palmer, H. R. Rishworth, H. L. Settle, and H. K. Shahani.

British College of Obstetricians and Gynæcologists

At a meeting of the council, held on Oct. 29th, with Sir Ewen Maclean, the president, in the chair, Thomas Charles Clare, Leicester, was admitted to the fellowship; and Dennis Valentine Morris and William Keverall McIntyre were elected to the membership. The following were admitted to the membership:—

Arthur Charles Belfield, *Godfrey Phillips Charlewood, Johannes Cornelius Coetzee, *Gladys Story Cunningham, James Bruce Dewar, *John Edis-Myers, Llewelyn Mervyn Edwards, Arthur Briant Evans, Agnes Jean Herring, Donald Forsyth Lawson, Thomas Emmet Lennon, Charles Rutherford Morison, Henry Anthony Rippiner, Dorothy Anderton Sharpe, Pillapalayam Veraswami Venkatswami, and *Harry Silvester Waters.

* In absentia.

At the end of the meeting Prof. W. Fletcher Shaw assumed the office of president, and Mr. G. F. Gibberd the office of hon. secretary. A vote of great appreciation for the services of Sir Ewen Maclean during the past three years as president and during the whole period since the inception of the college was adopted by the council.

The following candidates have been awarded the diploma of the college after examination:—

O. G. Bark, Dorothy M. Brook, Isobel Brown, Harold Burton, S. J. Cohen, R. R. Foote, G. R. Griffiths, Leonard Langmore, J. B. F. McKenzie, Agnes M. Mitchell, G. D. Owen, Constance E. Peaker, R. G. Record, E. R. Rees, H. G. Roberts, Una R. Roy, S. A. Scorer, Marjorie Swain, W. G. Swann, J. F. Swan, J. D. Watt, R. H. Vasey, and H. S. Wigfield.

At the eighth *annual dinner*, held at Claridge's on Oct. 28th, Sir Ewen Maclean presided and Dr. Robert Hutchison, P.R.C.P., proposed the toast of the College. It was, he said, his birthday—the anniversary of a day on which he spent several hours in the company of Sir James Young Simpson. The conversation had been rather one-sided—"though no doubt Sir James did his best to draw me out"—but from that day to this Dr. Hutchison had had a great liking for obstetrics and (perhaps more surprising) for obstetricians. *Et ego in Arcadia vixi:* I too have been an obstetrician. So it was that when the birth of the new college was being mooted, and the Royal College of Physicians was thinking of applying contraceptive methods, Dr. Hutchison had opposed them. Sir Ewen Maclean in reply spoke of the links between the Physicians and his own college, which now, he said, had 604 fellows and members and 156 diplomates. No less than 231 of the fellows and members lived overseas, including 52 in India. Both at home and abroad the college was doing all it could to raise the standards of practice, and if (as he had reason to hope) its status was recognised by the grant of a charter it would be able to do more. Sir Ewen concluded by referring to the election of Prof. Fletcher Shaw, than whom no man, he said, more thoroughly deserved the presidency. Prof. Daniel Dougal proposed the guests in a speech as competent and comprehensive as it was complimentary. Mr. Hugh Lett, P.R.C.S., responding, spoke of the great work of the college in improving practice. The multiplication of post-graduate diplomas was criticised, but had been made necessary by

the astonishing advance of knowledge and the requirements of the new college meant that every year a steadily increasing number of men and women made a special study of obstetrics. Each became an islet or cell, influencing his own neighbourhood; and the unsuccessful candidates might gain scarcely less benefit from the effort they had made. He hoped that the college would go further and raise the standards of hospital work, by confining its recognition to those appointments that conformed with its requirements. Mr. Norman Birkett, K.C., also replied.

University of Durham

Prof. A. F. Bernard Shaw has been appointed to the joint post of professor of pathology in the university and pathologist to the Royal Victoria Infirmary in succession to Prof. Stuart McDonald.

Dr. Shaw was educated at Trinity College, Dublin, and qualified in 1911. As a student he was twice awarded the medal of the Dublin University Biological Association. During the war he was pathologist to the Egyptian Expeditionary Force. On his return in 1919 he became lecturer in pathology to Durham University College of Medicine. In 1922 he was elected F.R.C.P.I. At the end of 1932 he was appointed to the chair of pathology in the University of Cairo.

University of Glasgow

Mr. Matthew White has been appointed to the Barclay lectureship in surgery and orthopædics in relation to infancy and childhood at the Royal Hospital for Sick Children, Glasgow, in succession to Mr. Alexander MacLennan, who has resigned.

University of Leeds

The annual dinner of the past and present men students of the Leeds school of medicine will be held at the Great Northern Hotel, Leeds, on Thursday, Nov. 24th, at 7.30, when Dr. J. P. Bibby will preside. The guest of honour will be Mr. Hugh Lett, F.R.C.S.

Institute of British Surgical Technicians

Mr. Terence Millin will deliver a lecture on bladder surgery, illustrated by a coloured film, on Friday, Nov. 18th, at 8.15 P.M., at the Welbeck Hotel, Welbeck-street, London, W. Tickets will be sent to members of the medical profession on application to the secretary of the institute, 6, Holborn-viaduct, London, E.C.

British Postgraduate Medical School

On Nov. 15th, 22nd, and 29th, and Dec. 6th, 13th, and 20th, at 4.30 P.M., Prof. E. Mapother will give a course of six lectures on medical psychology. On Nov. 18th and 25th, at 2.30 P.M., Mr. R. Ogier Ward will give a course of two lectures on diseases of the bladder. On Nov. 16th, 23rd, and 30th, at 4.30 P.M., Prof. H. W. Florey will give a course of three lectures on the mucous secretion of the gastro-intestinal canal. The lectures are arranged respectively by the departments of medicine, surgery, and pathology. Applications for tickets should be sent to the Dean of the School, Ducane-road, London, W.12.

Milk for Children

A deputation from the National Federation of Women's Institutes visited Mr. Walter Elliot, the Minister of Health, on Oct. 31st, to urge that milk at reduced prices should be made available to the children under school age of all needy parents. Under the present schemes only a small proportion of the rural population benefited from cheap milk. The purchase of sufficient milk at normal prices was quite beyond the means of agricultural families. The deputation hoped that future schemes would place an obligation on local authorities in this matter and that no medical certificate would be required as a condition of cheaper milk being given, but that all pregnant women and children under five years of age under a given income limit should be able to obtain milk at reduced prices. The deputation said that the income limit should not be too low, and suggested £250, the limit for insurable occupations under National Health Insurance. Evidence of income within this limit should take the place of detailed means tests. The scheme should be worked not through welfare centres, which were too few and far between in country districts, but through visitors constantly in touch with the families concerned. The Minister promised to consider the points raised.

National University of Ireland

The senate of this university has decided to confer the hon. degree of LL.D. upon Sir Walter Langdon-Brown.

London Hospital

The next award of the Liddle prize will be made for the best essay on the ætiology and treatment of purpura submitted to the dean of the medical college not later than May 31st. Further particulars will be found in our advertisement columns.

British Institute of Philosophy

An address entitled the development of Aristotle's thought will be given to this institute by Sir David Ross on Tuesday, Nov. 15th, at 8.15 P.M., at University College, Gower-street, London, W.C.1. Cards of admission can be had from the director of studies at University Hall, 14, Gordon-square, W.C.1.

Research Studentships

Particulars of the Jenner studentship in virus research and the Lister Institute research studentship in biochemistry, each of the value of £250 per annum, will be found in our advertisement columns this week.

A Kirk Duncanson fellowship for medical research will also shortly be awarded by the Royal College of Physicians of Edinburgh. The conditions of tenure are set out in our advertisement columns.

Conference on Child Guidance

The Royal Sanitary Institute has arranged a conference on child guidance to take place at its headquarters, 90, Buckingham Palace-road, London, S.W., on Thursday, Nov. 17th, at 2.30 P.M. The chair will be taken by Sir Henry Brackenbury, and a discussion on what local authorities can do for the maladjusted child will be opened by Dr. C. L. C. Burns, special school medical officer and director of child guidance for Birmingham.

International Congress of Comparative Pathology

The fourth Congress of Comparative Pathology is to be held in Rome from May 15th to 20th, under the presidency of Prof. D. Rondoni, director of the cancer institute at the University of Milan. The main subjects for discussion will be ultravirus diseases, heredity in pathology, the association of antigens and their function, and regressive processes in plants. Speakers from Britain include Prof. F. A. E. Crew and Prof. J. R. Marrack. The secretary of the British national committee is Mr. Fred Bullock, LL.D., at 9, Red Lion-square, London, W.C.1.

Extension of Redhill County Hospital

The original buildings of Redhill County Hospital at Edgware, with accommodation for 175 patients, were built by the Hendon board of guardians ten years ago. After the transfer of the hospital to the Middlesex County Council, it was decided to extend them to meet the growing needs of the area, and the new blocks, which will take 354 patients and additional staff, were opened by Lord Rochdale on Oct. 29th. The new out-patients' block contains a large waiting-hall on the lower ground floor, a dispensary, and rooms for the antenatal, ear, nose, and throat, and dental clinics, and for remedial exercises and electrical treatment. Above these are the radiographic suite, the minor operating theatre and laboratories, and the almoner's and other offices. The chest clinic will be housed in a building near the main gate. The maternity block, with 60 beds, includes a separate unit for emergency cases with its own labour-room, and a teaching unit for lectures and demonstrations. The medical block was originally designed for 294 patients suffering from chronic illness, but will at present be used for general medical cases, one section being reserved for tuberculous patients. The extensions to the nurses' home provide for 136 additional nurses, with recreation and quiet rooms, lecture theatres, and a preliminary training school. In the new hostel for the assistant medical officers each of the 10 officers will have a separate bedroom and sitting-room, and there is a dining-room, a lounge and billiards room. Further additions to the existing ward blocks will be finished next year, and will increase the accommodation by another 72 beds. The total cost of the extensions will be £300,000.

Medical Diary

Nov. 7th to Nov. 13th

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

Psychiatry. 8.30 P.M., Dr. Grace H. Nicolle: Pre-psychotic Anorexia. Dr. T. A. Ross and Dr. Neill Hobhouse will also speak.

WEDNESDAY.

Surgery: Subsection of Proctology. 8.15 P.M., special general meeting. 8.30 P.M., Mr. Lawrence Abel: (1) Diverticulitis of the Cæcum resembling Carcinoma. (2) Abdomino-perineal and Wertheim's Operation. (3) Carcinoma of the Rectum. (4) Double Carcinoma of the Rectum and Pelvic Colon. Mr. Cuthbert Dukes: (5) Local Spread of Carcinoma of the Rectum. Mr. W. B. Gabriel: (6) Amœbic Ulceration of the Anus. Mr. J. P. Lockhart-Mummery: (7) Carcinoma of the Rectum. Mr. O. V. Lloyd-Davies: (8) Sarcoma of Ischiorectal Fossa. Mr. E. T. C. Milligan and Mr. A. H. McIndoe: (9) Plastic Reconstruction of the Perineum.

FRIDAY.

Clinical. 5.30 P.M. (cases at 4.30 P.M.), Sir Henry Gauvain: (1) Marble Bones: Albers-Schönberg Disease. Mr. A. E. Mortimer Woolf: (2) Symmetrical Swelling at the Angle of the Jaw. Mr. Zachary Cope: (3) Actinomycosis of Face. Mr. Cecil Joll: (4) Complete Gastrectomy for Carcinoma. (5) Gastrectomy and Colectomy for Malignant Gastrocolic Fistula. (6) Sarcoma of Humerus. (7) Sarcoma of Clavicle: ? Ewing's Tumour. (8) Carcinoma of Stomach. (9) Carcinoma of Tongue. (10) Parathyroid Adenoma associated with Fibro-cystic Disease. (11) Anomalous Intrathoracic Goitre. (12) Middle Meningeal Hæmorrhage in a Child of Two. Dr. K. Reed-Hill and Mr. Lawrence Abel: (13) Blindness Cured by Cervico-dorsal Sympathectomy. Mr. Lawrence Abel: (14) Congenital Hemiplegia with Mental Deficiency, Treated by Dorsal and Lumbar Sympathectomy. (15) ? Double Buccal Carcinoma. Mr. Sangster Simmonds: (16) Actinomycosis of Face. (17) Sclerosis of Semilunar Bone. Dr. Bernard Schlesinger: (18) Congenital Pyloric Stenosis with Cardiospasm in an Infant. Dr. Geoffrey Konstam: (19) Intermittent Metrochylorrhœa. Dr. Thomas Hunt: (20) Splenomegaly. Mr. David Levi: (21–22) Dislocation of the Cervical Spine in Children. Dr. Bruce Pearson: (23) Purpura and Angioneurotic Œdema in a Male.

Ophthalmology. 8.30 P.M. (cases at 8 P.M.), Mr. Arnold Sorsby: The Abiotrophies of the Retina and Choroid.

HARVEIAN SOCIETY OF LONDON.

THURSDAY.—8.30 P.M. (26, Portland-place, W.), Sir Norman Kendal: Doctors and Detectives.

HUNTERIAN SOCIETY.

MONDAY.—9 P.M. (Apothecaries' Hall, Water-lane, E.C.), Mr. St. John Hutchison, K.C., Dr. H. Yellowlees, Mr. Albert Lieck, and Sir Holman Gregory, K.C.: That Psychological Treatment of the Criminal is Preferable to Punishment of the Crime.

EUSTON MEDICAL SOCIETY.

THURSDAY.—9 P.M. (Euston Hotel, N.W.), Dr. Richard Dobbs: Medicine in Soviet Russia To-day.

SOUTH-WEST LONDON MEDICAL SOCIETY.

WEDNESDAY.—9 P.M. (Bolingbroke Hospital, Wandsworth Common, S.W.), Mr. Laurence O'Shaughnessy: Indications for Cardiac Surgery.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

FRIDAY.—8.45 P.M. (Miller General Hospital, Greenwich, S.E.), Dr. Macdonald Critchley: Migraine.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY.—8.30 P.M. (11, Chandos-street, W.), Dr. E. A. Bennet: The Significance of Dreams.

BIOCHEMICAL SOCIETY.

FRIDAY.—3.45 P.M. (University College Hospital medical school, W.C.), short communications and demonstration.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

TUESDAY and THURSDAY.—5 P.M., Dr. Harold Scott: Conquest of Disease in the Tropics. (FitzPatrick lectures.)

UNIVERSITY OF LONDON.

TUESDAY and THURSDAY.—5.30 P.M. (King's College, Strand, W.C.), Prof. A. Dalcq (Brussels): The Formation of the Pronephros and its Causes.

UNIVERSITY OF OXFORD.

WEDNESDAY.—8.45 P.M. (Nuffield Institute for Medical Research), Dr. P. del Rio-Hortega: The Classical Neuroglia and the Oligodendroglia.

CHADWICK LECTURE.

TUESDAY.—5.30 P.M. (26, Portland-place, W.), Sir Stanley Woodwark: The Rise and Fall of Certain Diseases concurrent with the Progress of Sanitation and Hygiene.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

TUESDAY.—4.30 P.M., Dr. C. W. Buckley: Arthritis.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Mr. F. G. Young, Ph.D.: Carbohydrate Metabolism.

THURSDAY.—2.15 P.M., Dr. Duncan White: radiological demonstration. 3.30 P.M., Prof. F. J. Browne: Toxæmias of Pregnancy.

FRIDAY.—1.30 P.M., clinical and pathological conference (obstetrics and gynæcology). 2.30 P.M., Mr. G. C. Knight: Surgery of the Sympathetic System.

Daily 10 A.M., to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY.—4 P.M., Mr. W. A. Mill: Diagnosis of Sinusitis.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY.—4 P.M., Mr. W. H. Ogilvie: Diagnosis and Treatment of Acute Abdominal Emergencies (I).

ST. GEORGE'S HOSPITAL, S.W.

THURSDAY.—5 P.M., Dr. A. J. Lewis: psychiatric demonstration.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—2 P.M., Dr. Bertram Shires: Demonstration of X Ray Appearances of Diseases Affecting the Bones in Children. 3 P.M., Dr. Alan Moncrieff: Thymic Enlargement and Status Thymico-lymphaticus.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY.—3.30 P.M., Dr. Macdonald Critchley: Aphasia.

TUESDAY.—3.30 P.M., Dr. J. Purdon Martin: The Cranial Nerves.

WEDNESDAY.—3.30 P.M., Dr. F. M. R. Walshe: clinical demonstration.

THURSDAY.—3.30 P.M., Dr. Denis Brinton: The Motor System.

FRIDAY.—3.30 P.M., Dr. Bernard Hart: The Psychoneuroses.

Out-patient clinic daily at 2 P.M.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W.

FRIDAY.—3.30 P.M., Dr. Francis Bach: The Rheumatic Diseases in Childhood.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

TUESDAY.—5 P.M., Dr. Henry MacCormac: Principles of Treatment of Skin Disease.

WEDNESDAY.—5 P.M., Dr. I. Muende: Histopathology of Chronic Granulomata.

THURSDAY.—5 P.M., Dr. G. B. Dowling: Seborrhœa and Seborrhœic Dermatitis. (Chesterfield lectures.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY to SUNDAY.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E., all-day course in medicine, surgery, and gynæcology.—ST. MARK'S HOSPITAL, City-road, E.C., all-day course in proctology.—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C. afternoon course in dermatology. (Open to non-members.)—ROYAL NATIONAL HOSPITAL FOR RHEUMATIC DISEASES, Bath, Sat. and Sun. course in rheumatism and hydrotherapy. (Open to non-members.)

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.

WEDNESDAY.—4 P.M. (St. James' Hospital, Ouseley-road, S.W.), Mr. J. G. Yates Bell: urological cases.

MANCHESTER ROYAL INFIRMARY.

FRIDAY.—4.15 P.M., Dr. A. Hillyard Holmes: medical cases.

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. W. J. S. Reid and Mr. E. E. Hughes: demonstration of cases.

UNIVERSITY OF SHEFFIELD.

FRIDAY.—3 P.M. (Royal Infirmary), Dr. Robert Platt: Nephritis. 3 P.M. (Royal Hospital), Mr. V. Townrow: ear, nose, and throat demonstration.

LEEDS GENERAL INFIRMARY.

TUESDAY.—3.30 P.M., Mr. B. L. Jeaffreson: Common Gynæcological Conditions.

LEEDS PUBLIC DISPENSARY AND HOSPITAL.

WEDNESDAY.—4 P.M., Dr. R. E. Tunbridge: The Clinical Value of Endocrine Therapy.

EDINBURGH ROYAL INFIRMARY.

THURSDAY.—5 P.M., Prof. R. V. Christie: Emphysema. (Honyman Gillespie lecture.)

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY.—4.15 P.M. (Royal Hospital for Sick Children), Dr. Stanley Graham: Tuberculosis in Infancy and Childhood.

Appointments

ALDRIDGE, A. G. V., M.B. Camb., Resident Medical Officer at the Birmingham United Hospital.

BAMFORD, C. H., M.B. Manch., D.O.M.S., Hon. Ophthalmologist to the Derbyshire Hospital for Women, Derby.

BONNIN, J. G., M.B. Melb., F.R.C.S., M.C.O.G., Chief Assistant to the Department for the Treatment of Injuries at the West London Hospital.

CAMPBELL, R. J. C., M.B. Edin., D.M.R.E., Radiological Officer at Ancoats Hospital, Manchester.

CIRCUITT, EDNA, M.B. Manch., D.P.H., Resident Obstetric Officer at Oldham Municipal Hospital.

CRAIG, HUGH, L.R.C.P.E., Assistant School Medical Officer for Manchester.

DENHAM, R. H. G. H., M.D. Aberd., Medical Officer of Health for the Urban Districts of Frome and Keynsham, and the Rural Districts of Frome and Bathavon, and Assistant County Medical Officer for Somerset.

DYMOCK, THOMAS, M.D. Glasg., Senior Assistant Medical Officer, Lanark District Asylum, Hartwood.

GORDON, M. J., M.D. Belf., M.R.C.P., Hon. Clinical Assistant to the Medical Out-patient Department of the Willesden General Hospital.
HAYWARD, JOHN, M.D., M.S. Melb., F.R.C.S., Resident Surgical Officer at the Hospital for Consumption, Brompton.
HEUGHAN, KEITH, L.D.S., Hon. Dental Surgeon to the Derbyshire Hospital for Women, Derby.
INNES, ALEXANDER, B.Chir. Camb., F.R.C.S., Resident Surgical Officer at the Birmingham United Hospital.
JAMES, K. L., M.S. Lond., F.R.C.S., Surgical Registrar at the Gordon Hospital, London.
JONES, T. G., M.D. Lond., M.R.C.P., Assistant Registrar at the National Hospital, Queen-square, London.
LONGRIDGE, R. G. M., M.R.C.P., Resident Medical Officer at the Maida Vale Hospital for Nervous Diseases.
MACLAY, W. S., M.D. Lond., M.R.C.P., D.P.M., Hon. Physician for Psychological Medicine to the West London Hospital.
MALLINSON, F. B., M.R.C.S., Hon. Assistant Anæsthetist to the National Dental Hospital, London.
MORRISON, A. C., M.D. Glasg., D.P.H., Tuberculosis Officer and Medical Superintendent at the Oakwood Hall Sanatorium, and Medical Superintendent at the Isolation Hospital, Rotherham.
RAYNER, M. S. M., M.B. Camb., House Physician at the Maida Vale Hospital for Nervous Diseases.
ROTHWELL, ALFRED, M.A. Camb., M.R.C.S., Senior Medical Officer at the Out-patient Department of the Royal Manchester Children's Hospital.
SALMOND, MARGARET, M.D. Lond., F.R.C.S., M.C.O.G., Assistant Director at the Marie Curie Hospital, London.
SMITH, J. A., M.R.C.S., Second Assistant Medical Officer at Worcestershire Mental Hospital, Bromsgrove.
STRATTON, FRED, M.B. Manch., Assistant Medical Officer at the Out-patient Department, Royal Manchester Children's Hospital.
TAIT, R. H., M.D. Edin., D.P.H., Assistant Tuberculosis Officer for Leeds.
WALTER, LILIAN, M.B. Lond., House Surgeon at the Mount Vernon Hospital, Northwood.
WOOLLEY, E. J. STARBUCK, M.D. Lond., M.R.C.P., Hon. Pædiatrician to the Derbyshire Hospital for Women, Derby.
YEARSLEY, MACLEOD, F.R.C.S., Hon. Consultant for the Ear, Nose, and Throat to Chalfont and Gerrard's Cross Cottage Hospital.

London County Council.—The following appointments are announced. A.M.O. (II) = Assistant Medical Officer (Grade II):—
BRYSON, C. C., M.B. Camb., Assistant Pathologist, Central Histological Laboratory, Archway Hospital;
BATES, J. L., M.B. Lond., D.P.M., A.M.O. (II), Queen Mary's, Carshalton;
CAMPBELL, RUTH M., M.R.C.S., A.M.O. (II), Queen Mary's, Carshalton; and
STERN, DAVID, M.B. Edin., A.M.O. (II), St. Francis'.

Examining Surgeons under the Factories Act, 1937: Dr. J. M. DICKSON (Bootle District, Lancashire); Dr. C. B. LANYON (Falmouth District, Cornwall); Dr. W. E. PYPER (Cliff District, Warwick); Dr. C. W. HOPE-GILL (Billingshurst District, Sussex); Dr. D. DAVIDSON (Coventry East District, Warwick); Dr. H. M. ANDERSON (Coventry North District, Warwick); Dr. D. S. THERON (Roade District, Northampton); Dr. J. H. COLES (Mells District, Somerset); Dr. W. SCOTT (Alexandria District, Dumbarton); Dr. A. HENDERSON (Sandbach District, Chester).

Medical Referee under the Workmen's Compensation Act, 1925: G. O. TIPPETT, M.B., F.R.C.S., for the Chipping Norton, Oxford, Reading, Thame, Wallingford, Wantage, and Witney County Court Districts (Circuit No. 36).

Vacancies

For further information refer to the advertisement columns

Aberdeen City District Mental Hosp.—Jun. Asst. M.O., £300.
Altrincham General Hosp.—Hon. Surgeon.
Ashton-under-Lyne District Infirmary.—Res. Surg. O., at rate of £200. Also Cas. H.S. and two H.S.'s, at rate of £180 and £150 respectively.
Barrow-in-Furness County Borough—M.O.H. and Part M.O., £900.
Birmingham, St. Chad's Hosp.—H.S., at rate of £150.
Birmingham, Selly Oak Hospital.—Jun. M.O.'s, each at rate of £200.
Birmingham Children's Hosp.—Res. M.O., £175.
Birmingham General Hosp.—Res. Surg. O., £180. Also Med. Reg. and Res. M.O., £155.
Blackburn, Queen's Park Hosp. and Institution.—Res. Jun. Asst. M.O., £200.
Bolingbroke Hosp., Wandsworth Common, S.W.—H.S., at rate of £120.
Bradford, Infectious Diseases Hosps.—Asst. M.O., £250.
Bury St. Edmunds, West Suffolk General Hosp.—H.S., at rate of £180.
Chelsea Hosp. for Women, Arthur-street, S.W.—Jun. H.S., at rate of £100.
**Cheshire Joint Sanatorium, Market Drayton.*—Third Asst. M.O., £250.
Durham, Richard Murray Hosp., Blackhill.—H.S., £200.
Durham County Mental Hosp.—Asst. M.O., £350.
East Ham Memorial Hosp., Shrewsbury-road, E.—Anæsthetist, 1 guinea per session.
Edinburgh, Kirk Duncanson Fellowship for Medical Research, £350.
Evelina Hosp. for Sick Children, Southwark, S.E.—Fourth Anæsthetist, 25 guineas each session.
Exeter, Wonford House Hosp.—Med. Supt.
Glasgow Royal Hosp. for Sick Children.—Visiting Surgeon, £500.
Gloucester County and City Mental Hospital.—Asst. M.O., £350.
Guy's Hosp.—Sir Alfred Fripp Memorial Fellowship, £300.
Hampstead General and North-West London Hosp., Haverstock Hill, N.W.—Cas. Surg. O., at rate of £100. Also Ophth. Surgeon to Out-patients.
Hosp. for Sick Children, Great Ormond-street, W.C.—Res. Surg. O. and Res. Anæsthetic Reg., at rate of £200 and £100 respectively. Two Res. H.P.'s and Res. H.S., each at rate of £50. Also Res. M.O. for Country Branch, at rate of £250.
Huddersfield County Borough.—Asst. M.O.H., £500.
Isleworth, West Middlesex County Hosp.—Additional Visiting Ophth. Surgeon, 3 guineas per session.
Italian Hosp., Queen-square, W.C.—Hon. Anæsthetist.
King Edward Memorial Hosp., Ealing.—H.P. and Cas. H.S., each at rate of £150. Cons. Physician. Also Cons. Physician for Diseases of Children.
Lambeth Metropolitan Borough.—Deputy M.O.H., £840.
Lancashire Mental Hosps. Board.—Dental Surgeon, £500.
Leeds Jewish Hosp.—Res. M.O., at rate of £200.
Lichfield, Staffs County Mental Hosp., Burntwood.—Third Asst. M.O., £400.
Lister Institute, Chelsea Bridge-road, S.W.—Jenner Memorial Studentship and Lister Institute Research Studentship, £250.
Liverpool Institute of Research for Prevention of Disease.—Research Fellow.
London Chest Hosp., Victoria Park, E.—Res. M.O., £350. Also H.P. and H.S., each at rate of £100.
London Hosp., E.—Paterson Research Scholar and Chief Asst. to Cardiac Dept., £400. First Asst. and Reg. to Neurological Dept. Also Hon. Asst. Ophth. Surgeon.
London Hosp. Medical College, E.—Riddle Triennial Prize, £120.
London Jewish Hosp., Stepney Green, E.—Res. M.O. and H.P., at rate of £150. Also Res. H.S., and Res. Cas. O., each at rate of £100.
Macclesfield, Cheshire County Mental Hosp., Parkside.—Third Sen. Asst. M.O., £550.
Manchester, Crumpsall Hosp.—Res. Asst. M.O., at rate of £200.
Middlesbrough, North Riding Infirmary.—Asst. Hon. Surgeon.
Middlesex Hosp. and Medical School, W.—Med. Reg., Otological Reg., and Fracture, &c., Reg., each £300.
Miller General Hosp., Greenwich-road, S.E.—Res. Surg. O., &c., £250. Two Cas. O.'s and Out-patient O., each at rate of £150 and H.P. and H.S., each at rate of £100.
Newcastle-upon-Tyne City Hosp. for Infectious Diseases.—Jun. Res. Med. Asst., £250.
Portsmouth, Saint Mary's Hosp.—Jun. Asst. Res. M.O., £250.
Portsmouth Royal Hosp.—Cas. O., at rate of £130.
Preston Royal Infirmary.—Cas. O., at rate of £150.
Prince of Wales's General Hosp., N.—Hon. Clin. Assts. to Various Depts.
Rotherham, Alma-road Hosp.—Jun. Asst. Res. M.O., £180.
Rowley Regis Borough Council.—Asst. M.O.H. and Asst. School M.O., £500.
Royal Cancer Hosp., Fulham-road, S.W.—Asst. Pathologist and Radiologist, each £500. Res. H.S. and two H.S.'s, each at rate of £100. Also Surgeon.
Royal Dental Hosp. of London, 32, Leicester-square, London, W.C.—Hon. Asst. Dental Surgeon.
Royal Naval Medical Service.—M.O.'s.
Royal Northern Hosp., Holloway, N.—H.S., at rate of £70. Hon. Biologist. Also Second Physician for Diseases of the Skin.
St. Bartholomew's Hosp., E.C.—Chief Asst. in Dental Dept. Also Asst. Dental Surgeon.
St. Marks Hosp. for Cancer &c., City-road, E.C.—Res. Surg. O., at rate of £150. Also Clinical Assistantship.
St. Marylebone Borough Council.—Tuberculosis Officer, &c., £800.
Salvation Army, Mothers' Hosp., Clapton, E.—Sen. Res., M.O., £150. Also Jun. Res. M.O., at rate of £80.
Shoreham-by-Sea, Southlands Hosp.—Asst. Res. M.O., £300.
Southend-on-Sea General Hosp.—Cas. O., at rate of £100.
Stafford, Coton Hill Mental Hospital.—Asst. M.O., £400.
Stafford, Standon Hall Orthopædic Hosp.—H.S., £200.
Stourbridge, Corbett Hosp.—Res. Surg. Officer, £200.
Surrey County Council.—Asst. M.O.'s, £600.
Taunton and Somerset Hosp.—H.S., at rate of £125.
Tilbury Hosp., Essex.—Med. Supt., £200.
University College Hosp., Gower-street, W.C.—Registrar to X Ray Diagnostic Dept., £250.
Victoria Hosp. for Children, Tite-street, S.W.—Sen. Res. M.O., £200. Cas. O., at rate of £200. Also Physician to Out-patients.
Wimbledon Borough.—Asst. M.O.H., £600.
Winchester, Royal Hampshire County Hosp.—Second Asst. Hon. Anæsthetist.
Windsor, King Edward VII Hosp.—Cas. O., £120.
Woolwich and District War Memorial Hosp., Shooters Hill, S.E.—Res. Surg. O., £200. Also H.P., at rate of £100.

The Chief Inspector of Factories announces a vacancy for an Examining Factory Surgeon at Bethnal Green (London).

* In our last issue the salary printed was incorrect.

CHEMICAL RESEARCH LABORATORY, TEDDINGTON.—Mr. G. Stafford Whitby, Ph.D., at present director of the division of chemistry of the National Research Council of Canada, and formerly professor of chemistry at the McGill University, Montreal, to be director of this laboratory in succession to Sir Gilbert Morgan, F.R.S., who has retired.

NOTES, COMMENTS, AND ABSTRACTS

INFANTS AT WORK THROUGH PLAY

AN educational experiment carried out over a period of 3 years in an infants' school in the east end of London consisted in introducing education through play for infant school-children between the ages of 3 and 8 years.[1] Miss Boyce tells not only of successes but of difficulties which might well have proved overwhelming. When the change from the usual school curriculum to free and directed play was being made the children had to be guided through a period of wild and uncontrolled behaviour before settling down to the new routine. They gained familiarity with the three R's through the medium of play, each activity linking up with others. For instance, having first visited a post office they learnt the elements of measurements through building one and were then introduced to its management, to the buying and selling of stamps, to the sorting and delivery of letters, and thus inevitably to the writing and reading of them. They also managed shops in this way and had opportunities for cooking and sewing and musical and dramatic activities. Children over 6 years did formal work in reading and arithmetic for short periods during the day, but only when they showed that they were ready for such work. Visitors to the school seem to have been impressed not only by the happy atmosphere but by the children's absorption in whatever they were doing. The teacher's rôle in such a system of education, far from being passive or negligible, is more important than in orthodox teaching. Great demands are made upon her energy and resource, for instead of giving out set lessons she has constantly to supply information on an embarrassing variety of subjects. The success of the system must depend largely upon her ability to make the most of opportunities offered by the nature of the child's free play and to stimulate its interest by the introduction of new material at the appropriate time. This sort of experiment is to be welcomed because the educational system now adopted in infants' schools is certainly capable of improvement.

A GOLDEN JUBILEE

THE *Nursing Mirror* was founded fifty years ago by Sir Henry Burdett, and when it first appeared it had four pages. The current issue, resplendent in a golden cover, celebrates its jubilee with 140 pages. In the first article the changes which have taken place in the nursing world during the life of the journal are reviewed, and we learn something of the contributions it has made to the development of a profession out of a vocation. Less formal milestones are to be found on other pages and include contributions from probationers of 1888, 1913, and 1938 telling of their life and work. Another article compares the uniforms of yesterday and to-day. The journal has always been interested in the training of the male nurse, and a vivid series of pictures describes the work at the Mills School for training male nurses at Belle Vue Hospital, New York. To the numerous birthday greetings received by the journal we too would add "Many Happy Returns."

ADVENTURES OF A MAGNETOPATH

Dennis O'Callan, medical student, is an Irishman who, having failed in his final examination, turns "again the government" and becomes a quack.[2] He buys a practice from a "magnetopath" and settles in a garden city where, despite an early disaster, he ultimately prospers, thanks largely to an advertising campaign conducted for him—at a price—by the disreputable editor of the local newspaper. The editor is murdered and suspicion falls on O'Callan, who is tried for his life but acquitted. His practice cannot survive the unsavoury publicity and O'Callan emigrates to Canada, where he lives happily, having abandoned quackery for scientific farming. Using the characters of this novel as media, the author contrives to put the case against quackery fairly, and without exposing himself to the charge of medical bigotry. The characters, however, suffer in the process, for they never really come to life but are merely puppets for the ventilation of facts and opinions. Even O'Callan himself is not convincing; alternately swaggering and wistful, he knows too much of medicine to be a good quack and too little of it to be a good doctor. But through his mouth, the author, in the closing chapters, extends his thesis. Quackery, in the wider spheres of politics and economics, has brought Europe to her present pass. The book is naïve rather than profound but contains much truth and good sense and should be read by that large public upon whose gullibility quackery battens and thrives.

PELLAGRA IN A MENTAL HOSPITAL

IN most countries pellagra is a very rare disease and few observers can have had the experience of C. D. de Lange, J. C. Boswijk, and C. L. C. van Nieuwenhuizen, who saw and treated no less than ten patients within two months.[1] The outbreak occurred in a mental hospital, all the patients being women. Six of them were negativists, refusing food; three were suffering from gastro-intestinal disturbances; and in the last patient the disease developed during a course of Cardiazol shock treatment. The first case occurred in a woman of 45 with melancholia. The earliest signs were pigmentation of the skin of the axillæ and thighs and a painful red tongue, followed by intractable diarrhœa. The patient was treated with liver extract, but the disease continued to progress and death took place within a month from the onset. The remaining patients were all treated with nicotinic acid in daily doses of 150–300 mg. and all recovered after about three weeks' treatment. No toxic effects were observed. It was noted in these 9 cases, moreover, that with the disappearance of the pellagra symptoms their mental state also improved. All those who had previously refused food took to eating again and gained weight.

A possible explanation of the immunity of the male patients in the institution during the outbreak is, the authors suggest, their much greater indulgence in smoking as compared with the women.

TUBERCULOSIS OF THE PAROTID

IN a Paris thesis (1938, No. 635) L. E. Jullich says that since tuberculosis of the parotid was first observed by Valude in 1888, less than 30 cases have been recorded. According to Valude the rarity of the affection is due to the bactericidal action of the saliva and the coexistence of the ordinary flora of the mouth. Infection of the parotid may occur via Stensen's duct, via the lymphatic or blood stream, or by direct contiguity. The course of the disease is slow and is characterised by a unilateral swelling of the parotid, which may be either diffuse or circumscribed and is usually painless but sometimes tender. Functional disturbances are slight and often absent. The general condition remains good and the temperature is normal. In exceptional cases, as in a patient under Jullich's own observation, pain, trismus, and constitutional disturbance are prominent. The condition must be distinguished from tuberculous adenitis of the parotid region, gumma of the parotid or calculus of Stensen's duct, actinomycosis, and cysts of the parotid. Treatment, Jullich thinks, should be conservative and should consist in repeated

[1] Play in the Infant's School: An account of an Educational Experiment in the Raleigh Infants' School, Stepney, London, E.1, January, 1933–April, 1936. By E. R. Boyce. London: Methuen and Co. 1938. Pp. 185. 5s.

[2] Quack's Paradise. By Sidney Fairway. London: Stanley Paul and Co. 1938. Pp. 288. 7s. 6d.

[1] *Ned. Tijdschr. Geneesk.* 1938, **82**, 4970.

punctures, curetting, and applications of dressings impregnated with chloride of zinc or tincture of iodine. Recovery is the rule and often rapid.

SEX INSTRUCTION

BOOKS on sex continue to appear in profusion; but though they necessarily cover much the same ground the method of approach varies widely. Dr. E. F. Griffith [1] makes a useful, if not particularly original, contribution to the subject, which will appeal to doctors as well as laymen. He deals first with the anatomy, physiology, and psychology of reproduction and sex and includes reliable and up-to-date chapters on family limitation and contraception. He then turns to questions of sexual morality and religion, sex education, and the factors conducive to healthy and happy marriage, adding appendices on matters ranging from the indications for therapeutic abortion and the abortion laws in various countries to the treatment of sterility and child delinquency and matrimonial courts. Dr. Griffith has recapitulated many of the views expressed and much of the information contained in this book in another lighter one,[2] which is written in the form of conversations between men and women of representative types.

Disturbed by the ignorance of seemingly emancipated young people on vital matters of sexual physiology and sound marital relationship, Dr. Estelle Cole formed classes for young women to whom she gave a series of talks, now printed in book form.[3] The style is colloquial, and the facts not always accurate, but much of the advice is sound and sensible, notably that on the training of children with a view to producing in the future happy and well-adjusted husbands and wives. Puberty, the physiology of reproduction, the engagement period, the honeymoon, and pregnancy are briefly dismissed; the notes on birth control are so brief as to be misleading and should have been either expanded or omitted. In her last talk Dr. Cole tackles the problem of the involutional phase of life in both women and men and gives helpful advice. She is an apostle of sublimation and throughout the book insists on the importance of turning sexual desire into creative channels, particularly at the ages when sexual upheavals are most common.

Presumably intended for those with only the most elementary knowledge of sexual physiology and psychology, Mr. Ryley Scott's little book [4] has many good points. It is rather carelessly written in places, but the author presents his facts clearly and most concisely. In 85 pages he manages to run over most of the aspects of married life on which information may be sought. It is inaccurate to say that the eyes of a new-born baby are *washed* with silver nitrate solution (p. 64) or that there are at least twenty out of every twenty-eight days on which a woman cannot conceive (p. 54). In the discussion of sterility the importance of complete examination of the husband and the possibilities of such procedures as tubal insufflation and endocrine therapy in the wife are not adequately stressed.

CORRIGENDA.—In our account of the London Medical Exhibition, Magsorbent, a synthetic hydrated magnesium tri-silicate, was included in error among the preparations of colloidal kaolin shown by Messrs. KAYLENE, LTD., while the H-R Emulsion Jelly made by PRENTIF LTD., contraceptive specialists, was inadvertently described as water-proof; the word should have been *water-soluble*.

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[1] Sex in Everyday Life. By Edward F. Griffith, M.R.C.S. London: George Allen and Unwin. 1938. Pp. 379. 10*s*. 6*d*.
[2] Morals in the Melting Pot. By the same author. London: Victor Gollancz. 1938. Pp. 301. 5*s*.
[3] Education for Marriage. By Mrs. Estelle Cole, L.R.C.P.E. London: Duckworth. 1938. Pp. 102. 3*s*. 6*d*.
[4] Sex in Married Life. By George Ryley Scott, F.Ph.S. Eng., F.Z.S., Fellow Royal Anthropological Institute. London: T. Werner Laurie. 1938. 3*s*. 6*d*.

NEW PREPARATIONS

CALDEFERRUM TABLETS are intended as a safeguard against possible dietetic deficiency of iron, calcium, or vitamin D. They were produced with the needs of pregnancy and lactation particularly in mind, but are considered equally appropriate for debilitated or convalescent patients. The suggested dose of four of the chocolate-covered tablets daily is stated to provide 25 mg. of ferrous iron, 0·5 g. of calcium, and 2000 international units of vitamin D. The manufacturers are Glaxo Laboratories Ltd., Greenford, Middlesex.

Tooth-brushes are often very badly kept. We have received from M. & S. SUPPLIERS (71, Long Elmes, Harrow, Middlesex) an example of their Dental-Stero Container in which the tooth-brush hangs by its head from inside a small glass dome which is charged with crystals giving off a disinfectant vapour. Hung in this way after use the tooth-brush is said to be sterilised as it dries. The crystals as well as the tooth-brushes are made in various colours, so that each member of the family shall keep to his own container, and the tooth-brushes are to be had in three shapes. A bracket fixes the container or containers to the wall by spring clips.

DISCLAIMER.—Dr. William Brown disclaims all responsibility for an article in a Sunday newspaper containing an old photograph and an account of a case erroneously said to have been treated by him.

Births, Marriages, and Deaths

BIRTHS

BRAY.—On Oct. 23rd, at Arkwright-road, N.W., to Constance, the wife of Dr. George Bray—a son.

DRAKE.—On Oct. 25th, at Welbeck-street, W., to Kathleen (née Elston-Davies), the wife of Surg.-Comdr. D. C. Drake, R.N.—a son.

FLANNERY.—On Oct. 21st, at King George V Hospital, Malta, to Elisabeth, the wife of Surg. Lt.-Comdr. A. E. Flannery, R.N.—a son.

GRIFFIN.—On Oct. 27th, at Scarborough, the wife of Mr. T. F. R. Griffin, F.R.C.S.—a daughter.

MACKEITH.—On Oct. 29th, at Leamington Spa, the wife of Dr. Stephen MacKeith, of Hatton, near Warwick—a son.

MASSEY-LYNCH.—On Oct. 24th, at Blundellsands, the wife of Capt. Massey-Lynch, R.A.M.C.—a son.

ROCYN JONES.—On Oct. 25th, at Llantarnam, Monmouthshire, the wife of Dr. Gwyn Rocyn Jones—a daughter.

WEDDELL.—On Oct. 29th, at Devonshire-place, W., the wife of Dr. A. G. McD. Weddell—a daughter.

MARRIAGES

HAMILTON—KOERNER-BAKER.—On Oct. 24th, in London, James Hamilton, M.B. Glasg., of Galston, Ayrshire, to Suzanne A. Koerner-Baker.

OLDHAM—BRYAN.—On Oct. 26th, in London, Ralph Stransham Oldham, O.B.E., M.D. Dubl., to Esmée Norah Evelyn Bryan.

DEATHS

ALLIN.—On Oct. 28th, in Bournemouth, John Richard Percy Allin, M.C., L.R.C.P.I., D.T.M. Liverp.

BRUCE-JONES.—On Nov. 1st, David Bruce Stewart Bruce-Jones, M.D. Durh., M.R.C.S. Eng.

COOKE.—On Oct. 28th, at Flore, Northampton, Albert William Cooke, M.R.C.S.

DUPONT.—On Oct. 30th, at Frome, Somerset, John Munro Dupont, M.D. Edin.

GUSH.—On Oct. 31st, Howard Walter Gush, M.B. Edin., late West African Medical Service.

JOHNSON.—On Oct. 25th, at the General Hospital, Barbados, John Taylor Connell Johnson, F.R.C.S.E., D.T.M. & H.

KENTISH WRIGHT.—On Oct. 25th, at Reading, Oswald Kentish Wright, M.B. Camb., D.P.H.

MACKAY.—On Oct. 30th, at Devizes, Henry John Mackay, M.D. Edin., aged 80.

WOODHOUSE.—On Oct. 26th, at Llandudno, Edward Robert Woodhouse, M.B. Edin., aged 75.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.